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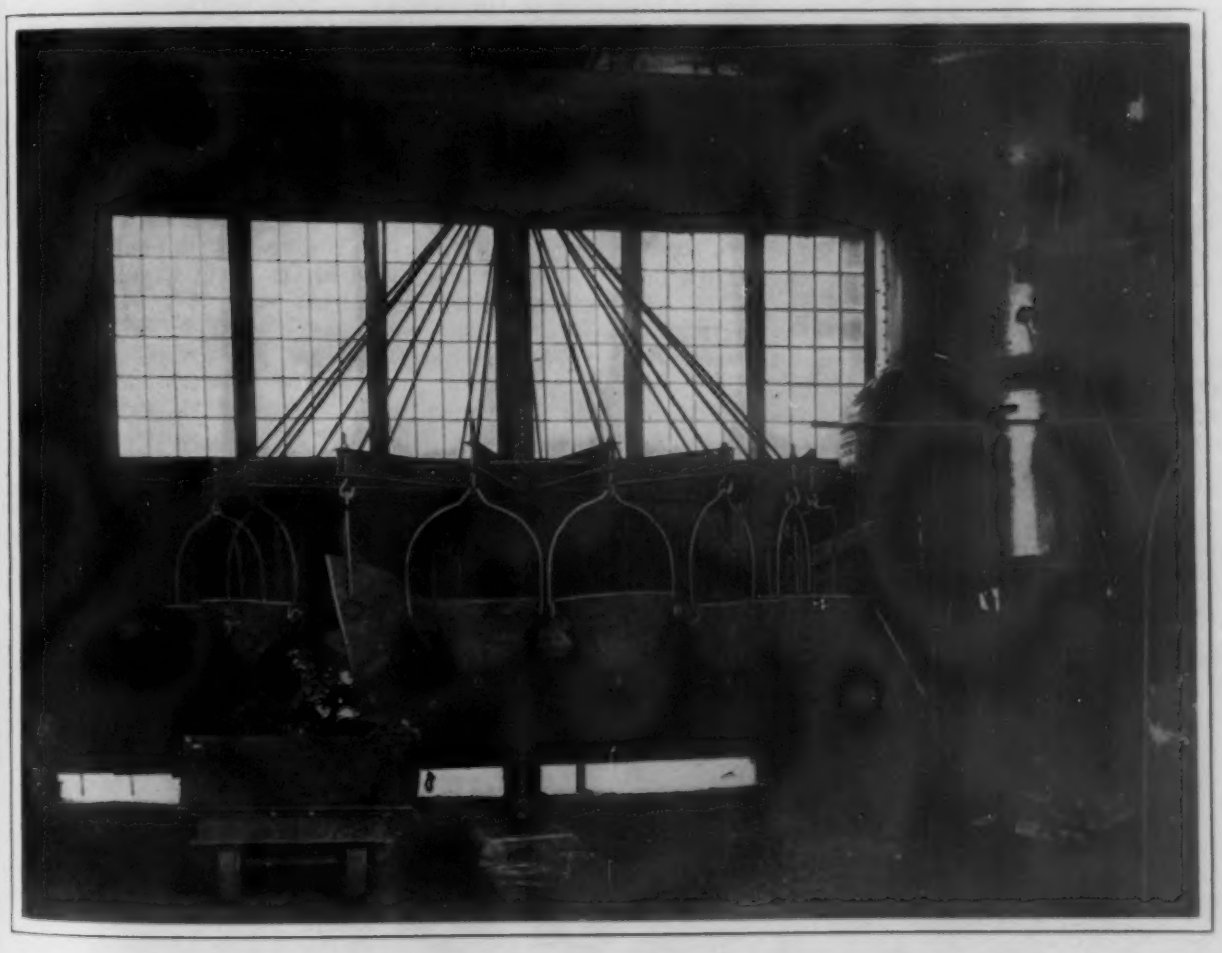
# Labor Saving Devices in Texas Foundry

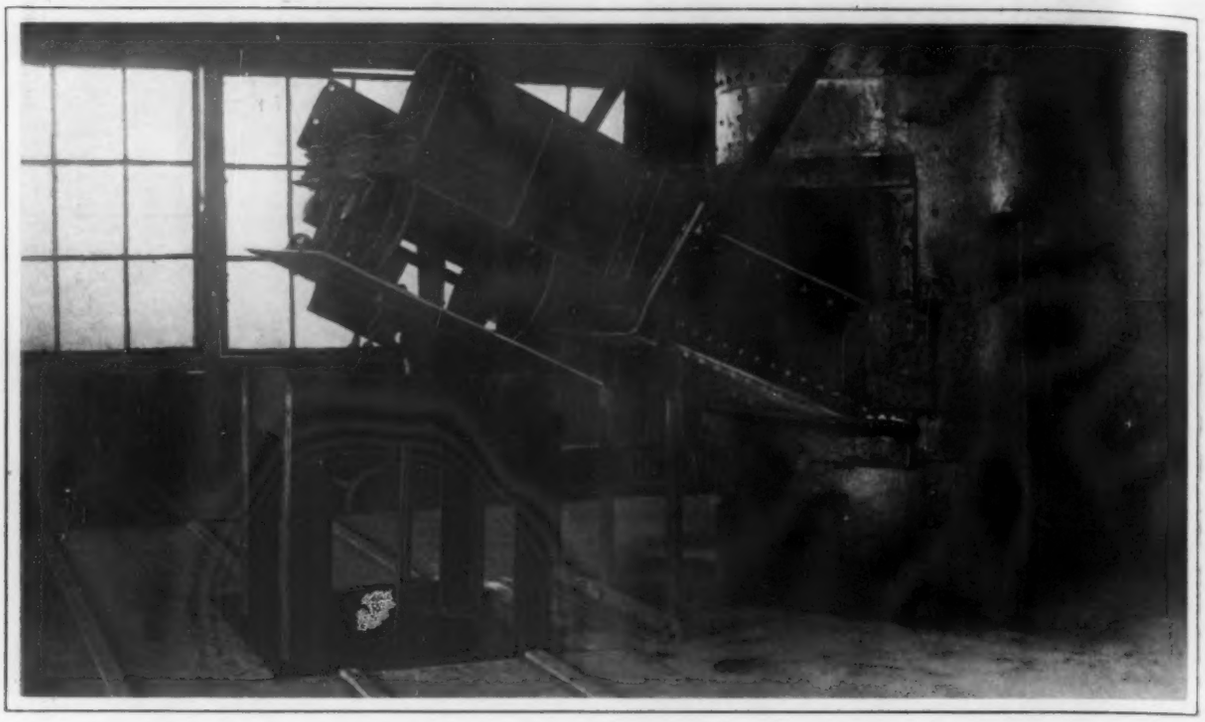
## Merry-Go-Round Slag Crane—Charging Machine for Cupola—Practice Followed in a Straight Floor Carwheel Plant

When the plant of the Dickson Car Wheel Company was built at Houston, Texas, in 1908, it embodied a number of improvements over the methods in vogue at that time. The straight floor system was employed and the floors not only had capacity for a greater number of wheels but the distance between centers of the floors was also more. Prior to the erection of this plant, the maximum distance between floor centers of this type, it is understood, was 9 ft., and the capacity of floors was 20 wheels. In this plant, however, the center distance was increased to 12 ft. and the capacity of the floors was brought up to 25 wheels each. A number of minor changes and improvements have been made since the foundry was started and several labor saving devices have been added, probably the most prominent of which are a slag crane and a charging machine for the cupola, both of which were designed and erected in the company's own shop.

The slag crane or merry-go-round, as it is termed in the shop, employs a piece of heavy pipe with bearings at the top and bottom. To this pipe are fastened 16 horizontal arms, made of I-beams and reinforced by rods running from the end of each arm to a casting located near the top of the pipe. On the end of each arm is hung a cast-iron pot or ladle of conical shape, located so as to permit each pot to be swung under the end of the slag spout in turn to receive its load of molten slag. The cupola practice of the company is to per-



Slag Crane Consisting of a Piece of Pipe with 16 I-Beam Arms Each of Which Supports a Conical Cast-Iron Pot or Saddle



A Cupola Charging Machine Which Was Designed and Built in the Company's Shop

mit the iron to run out of the slag spout before each tap, and it has been found that iron runs through slag to the bottom of the pot, even though two taps have to be made before the ladle is filled. It forms a solid mass, which is easily knocked off when the pot is dumped after cooling. The slag itself is solid and clean and contains no particles of iron except that which forms in the bottom of the ladle. The crane, which turns easily, is operated by the cupola tender during the heat, a second ladle being pulled into position as soon as the one under the spout is filled. A small pneumatic hoist fastened to the wall with an iron cable running over a sheave on the ceiling is used to dump the contents of the ladles into a yard truck after cooling. This work is done by one man and the crane has been found a great labor saver over the method of handling slag formerly employed.

The charging machine, which is worked by an air cylinder of large diameter, was designed and erected in the company's own shop. The entire frame of the charging machine and its load is lifted by the cylinder to the desired hight, and the frame or table stops at this point. It is then slowly tipped at an angle, throwing the contents of the charging buggy into the cupola. Counterbalance weights are employed to offset the weight of the frame, so that practically the only load on the cylinder is that of the buggy and its contents. At the time the cupola was built it was one of the largest, the inside diameter being 102 in. The blast is supplied by a high-pressure blower and is controlled by an automatic registering pressure recorder.

The entire foundry yard is laid out with a complete system of industrial tracks so that all material is brought to one central point, loaded on steel charging buggies before being brought to the charging platform. The charging floor is served by two 3-ton elevators, each of which has tracks on which the various charging buggies are raised to the charging floor from the ground level. There are four main tracks and turntables on the charging floor, with two additional storage tracks. The metal is tapped into a 10-ton electrically-operated ladle, controlled from a stationary pulpit at the side of the building. Overhead trackage is used to a great extent and the iron is taken from the large ladle in smaller ones by this overhead system and delivered to the molders located on the different floors. Pneumatic hoists, which have the cylinder and valves attached to the wall opposite the cupola so as to be out of the way of the dust and dirt of the foundry floors, are used to raise and lower the ladles and the wheels. A system of rope transmission controls the movement of the hoist, so that the molder can stand at any point of his floor and control all the operations.

After the wheel has cooled sufficiently it is shaken out and is gripped on the side by tongs hanging from the hoist, the loose sand that does not fall away when the wheel is raised being knocked off with a sledge. The wheels are then carried across the floor to the hot metal buggies, the movement of which is controlled by the same operator that regulates the movement of the ladle. These buggies deliver the wheels to the pitting cranes, but prior to their being lifted from the buggies, the heads are knocked off and the core centers knocked out.

Annealing pits to the number of 120 are located at one end of the foundry, and are spaced 52 in. on centers. They are served by four cranes which also remove the wheels after they have been thoroughly annealed and deliver them to the cleaning department, which is located in the same relative position to the foundry floor as an average car floor bears to the road bed. After being cleaned, the wheels are rolled directly into the cars for shipment.

The plant has a daily capacity of 400 wheels and is divided into 16 floors, each having provision for 26 chills. The main building, which is of white brick and steel construction, measures 135 x 264 ft. In common with all the other buildings, it has a terra cotta tile roof and practically continuous rows of high windows on all four sides. The cupola room, 30 x 72 ft., adjoins the plant at the center of one side. The core department is housed in a separate building, measuring 36 x 100 ft., and is connected with the foundry by industrial tracks. Core and sand storage sheds adjoin the core build-

ing, and the sand is unloaded directly into the storage room, thus eliminating extra handling. The air compressors, blowers, etc., are motor driven, and are housed in a power house measuring 40 x 72 ft.

## Heating and Ventilating Factories

From a committee report presented before a recent meeting in New York of the American Society of Heating and Ventilating Engineers by E. L. Hogan, chairman, the following notes have been taken:

The industrial building of to-day is heated by one of three methods: direct steam; direct hot water; or by forced circulation of air which is heated by heaters, supplied by steam or hot water and centrally located. The greater number are heated by direct steam because it can be installed by any steam fitter and frequently the superintendent with his millwright and other help can do the work. They know more about this system than any other and are not keen for methods they do not fully understand.

In certain lines of industry where moisture from some drying process or otherwise, must be absorbed by the air within, the blower or hot-blast system is most efficient because by means of it the moisture is removed by the circulation of the air that heats the building. Also in buildings where smoke or gases must be removed, the forced circulation is desirable.

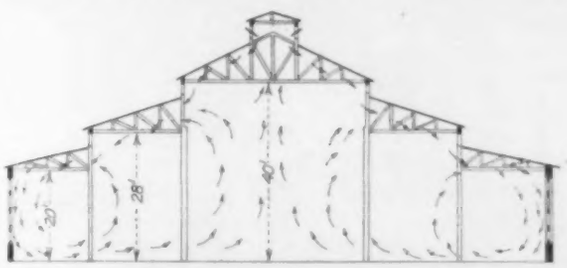



Fig. 1—Natural Air Currents When Heating Method Minimizes Draftiness by Keeping Exposed Surfaces Warm

In order to study the movement of air currents let us assume a building as illustrated in Fig. 1. This could be used as a foundry, machine shop, carshop, structural steel plant or forge. The side walls are of concrete blocks and glass set in steel sash; the frame work is of steel, the floor of concrete; the roof of reinforced concrete with composition roofing cover. The natural air currents in the structure would be as indicated by small arrows in the illustration. This movement is caused by the difference in temperature of the air within; that coming in contact with the cold roof, monitors and outside wall becomes cooler and heavier, and consequently falls. The warmer air in contact with the floor rises and circulation is set up tending to equalize the inside and outside temperature.

From a heating standpoint we are interested in a strata covering the lower 8 ft. of the interior; this must be kept comfortable and fairly uniform. It can be accomplished by creating currents in the upper portion of the building so that no cold air will reach the floor, taking care of the outside walls by radiant heat from radiators placed above and out from the walls, or below and on or near the walls, and taking care of the lower strata of air by heat from the hot strata above. This method is practically keeping the exposed surface of the structure warm so that there will be no cold currents in the working portion.

In structures of this kind where the peak of the roof is 40 or 50 ft. above the floor and a working temperature of 65 deg. near the floor is maintained, the temperature near the peak will be approximately 90 deg. While it is apparent that by keeping the exposed surface warm or keeping a layer of warm air next to it, that the inside of the structure will be warm, nevertheless, it would seem as though it would be better to keep the working strata warm and do so in such a way as to prevent the cold currents from entering this strata. This would reduce the temperature of the air in proximity to the cold exposed surface and decrease the heat loss from the building.

In order to produce results like this it would be necessary to continually mix hot air with the air in the working strata in order to maintain a working temperature. In this system the hotter portion of the building is the lower, and the radiant heat is up and toward the exposed surfaces. Air mixes or diffuses very rapidly and sufficient air must be circulated in the lower working strata to maintain a uniform temperature. Such a system is what is aimed at with hot blast and what is frequently obtained. It is surprising how well and with what a little heating surface and consequent small steam consumption one can heat a building in this way. A distributing system which would approximate these results is indicated in Fig. 2.

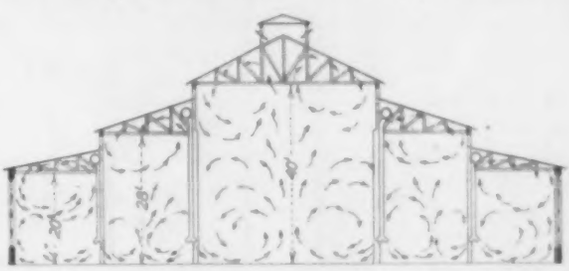



Fig. 2—The Air Currents When Hot Air Is Blown Into the Working Strata

Frequently it is attempted to heat a structure like this with a hot blast system by simply having outlets in the mains and no drop pipes. In this case it would be necessary to direct air toward the outside walls and downward at various angles in order to produce a distribution and the heating would revert to a condition where one would have to warm or produce a layer of warm air next to the exposed surfaces and in this it would be the same as a direct radiation system. The exposure in this case would be larger and the usual method of figuring would not suffice.

One feature of hot-blast heating that is particularly apparent to us is that most contractors do not have the confidence in their ability to make the installation a success that they do with direct radiation. As a result, very often direct radiation is resorted to where a fan system would be more satisfactory and economical. We think this is due possibly to the feeling in general that a fan system is more or less guesswork. Nothing is further from the truth, for the science of hot-blast heating has been developed until absolute results can be guaranteed by the leading concerns.

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The Delaware Foundry & Machine Company, Delaware, Ohio, has completed its organization by the election of C. C. Steadman, president; F. M. Bauereis, vice-president; H. M. Bing, treasurer; and Robert Greer secretary and manager. The company expects to have its new foundry ready for operation in about a month.

# Locating an Executive in the Factory

## Employing Telephones and Extension Signal Bells Instead of Messengers to Find Men Frequently Absent from Their Desks

BY H. A. RUSSELL*

The methods formerly used in locating Mr. Jones or Mr. Smith by messengers, hurrying from one department to another, interrupting workmen and often not finding the party wanted until the need of his presence had passed, have become practically back numbers. To those who have become accustomed to the newer methods, the former seems as antiquated as the stage coach or the horse cars. Every day more and more factories, mills and department stores are taking a big step forward by installing telephone switchboards, in charge of competent operators of either sex. These phones are usually located in the various department offices, but there are usually certain strategic points between departments, where the phones may be placed to advantage. The location of all phones should be determined in consultation with the representative of the telephone company.

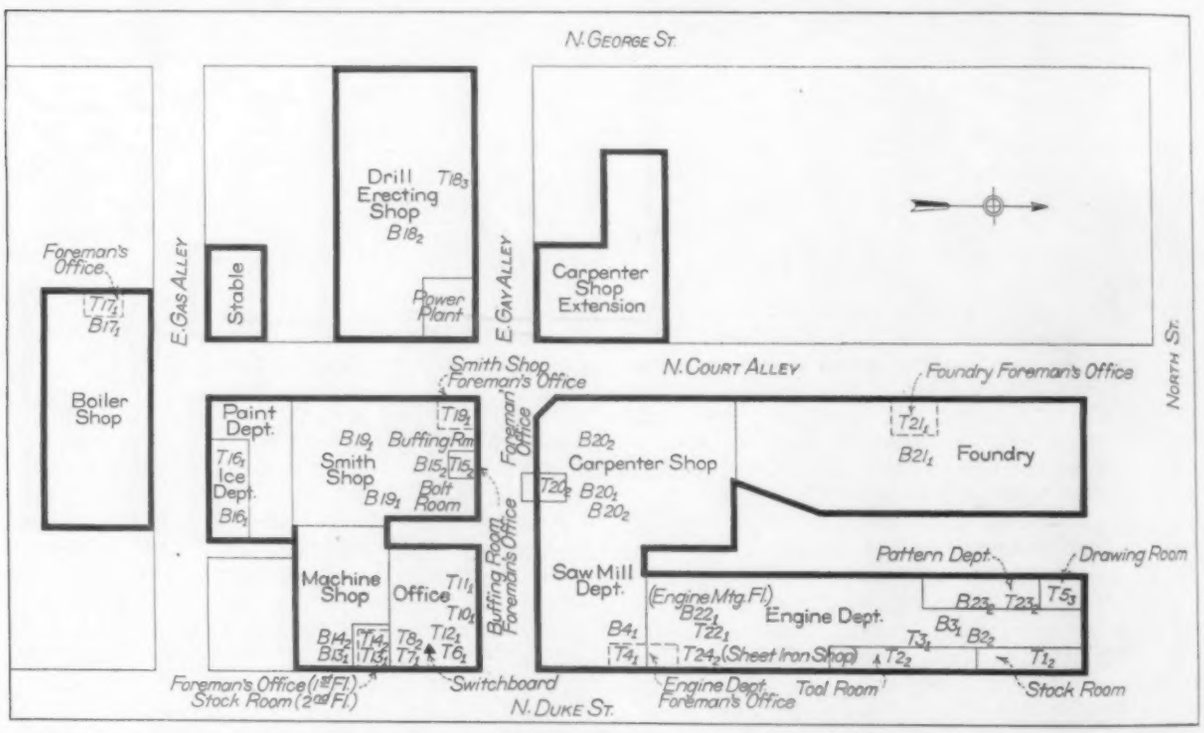



Diagram of a Factory Showing the Arrangement of Telephones and Signal Bells Employed in a Large Manufacturing Plant To Locate Men Who Are Not Always at Their Desks. In the Drawing the First-Floor Partitions Are Indicated by Dotted Lines and Those on the Second Floor by Solid Lines. The Numbers Are Those of the Extension Lines from the Telephone Switchboard and Correspond to the Jacks Thereon, the Prefixes B and T Being Used To Denote Signal Bells and Telephone Instruments Respectively, While the Small Inferior Numeral Following Designates the Floor on Which the Bell or Telephone is Located

About a year ago we installed a switchboard controlling 17 factory department telephones and 7 in the main office, or 24 in all. We, however, went a little further than this. From the majority of the factory department telephones we ran extension wires to signal bells. On the majority of these extension lines we only required one bell, but on one line we have two and on another line three signal bells. The distances that these bells are located from their respective phones vary from 20 to 100 ft. We found that there were six men in the office and works whom it might be necessary to locate at any moment of the day. To each of these six was given a separate signal, such as two rings-three rings, four rings, then for the others, two-two, three-two and four-two. These signals are easily remembered and a larger number than we use can be readily handled by the operator and easily distinguished from each other in the factory. Within a very short time the operator will learn how to give clear, distinct signals. When the operator calls any shop phone from which an extension line runs, the bell at the phone and those on the extension line ring simultaneously. If the party wanted is not close to the phone the extension bells will attract his attention, within a radius varying from 20 ft. in a boiler shop to several hundred feet in other departments. When the noise is extreme, as in a boiler shop, a signal light can be used if desired.

When a single ring is given at any of the phones the person nearest to the phone should answer, but when any of the specific calls are given only the person whose signal is given should answer. By insisting that this rule be followed there is absolutely no time wasted, by a number of people in various departments answering calls that are intended for only one particular party. To enumerate all of the various time saving plans that have come up would make an extended list, but a few of these may be of assistance to others. Office men can be located in the various departments for long distance calls, which can often be answered from the nearest

*A. B. Farquhar Company, York, Pa.

phone, thus saving the time required to come to the office and return and doing away with the possibility of keeping others from proceeding with the matter in hand also. Salesmen can be located and summoned to the office to meet customers. Notices of meetings can be sent out by the operator. When these meetings may occur only once in a month, the operator can be of valuable service, in seeing that everyone who is to be present receives the notice in time. For one series of our shop meetings the individuals are notified not only shortly before the meeting hour, but the day before also. This gives them a chance to have their questions or suggestions thought out and not only increases the value of the meeting, but shortens the length of time required. Foremen can send to or receive information from each other, from their own department or wherever they may be at the time. The operator locates the party, then notifies the caller and thus saves the time of both, or the operator can take a memorandum of the message, transmit it at the first opportunity and then transmit the answer if any is required. Remember that the more the operator has to do, the more time is being saved by the department heads.

The signal system has worked out splendidly. As a rule our operator can locate individuals in less than a minute. In fact, the signal can be sent over the whole plant, which covers four city blocks, in less than a minute. There are several concerns who have an electrical call system that rings all bells simultaneously. We have found, however, that our operator has not had the slightest trouble in handling the separate calls. Before the operator leaves at the end of the day two of the phones are connected with the telephone exchange and these are not disconnected until the operator returns in the morning. One of the phones so connected permits of the factory watchman being in close touch with the city fire department, police headquarters, etc.

One of the essential details is to keep the regular operator or a competent substitute at the switchboard at all times during the working hours. By not doing so the very purpose for which the switchboard was installed, namely, to save the time of men to whom the minutes count, will be defeated. The operator should have other work, that is, work which will not take her away from the switchboard, such as circular work, addressing, card index or any other work, which can be dropped instantly and resumed later without losing the thread of consecutive thought. A desk can be placed at right angles to the switchboard and by means of a revolving chair the operator can swing from one desk to the other without moving the chair or arising from it.

In every factory there are certain bells that are in more or less constant use, such as elevator bells. Therefore, the extension bells should, as far as possible, have a different tone or sound from the regular factory bells. Signal bells should be placed as far from electric motors as may be consistent with their location value. The hum of the motor at times seems to strike the same keynote as the bells and either absorbs the bell sound or drowns it. The same trouble has also been found when the bells were placed too close to the circular saws in the woodworking department. In one or two locations it was necessary to construct sound proof booths, the boiler shop being one of these. Tongued and grooved boards were used, double thickness, with building paper between. The door should fit snugly. Inside there should be a drop light, also shelf for telephone and memorandum pad. The desk type of phone seems to answer all purposes very well, although the wall type will be installed if desired.

A small size outline map of the various buildings and departments, showing the location of telephones and extension bells, would prove to be a big help to a new operator, especially if the operator is a girl, as the chances are small of her actually becoming acquainted with the physical layout of the factory and the relation of one department to another. A map similar to the diagram shown would be sufficient. Changes can, of course, be made or additional equipment added from time to time, if the need arises after the system has been in operation for a period.

Referring to the diagram it will be noticed that the three signal bells branching from telephone No. 20 are not all on the same floor, two are on the second floor and one on the first or ground floor. Telephone No. 18 is on the third floor of the warehouse, while the signal bell is on the second floor. Several considerable areas not covered by the telephones or signal bells will be seen. These are outside of the usual traffic routes and are mostly for storage. Consequently there is very little noise and the bells on the other phones will send their signal through these spaces.

A special call for the factory fire department can be added to the signal list if desired. We have found an emergency call list of considerable value. This includes local fire department, a list of doctors, police headquarters, ambulance, etc. By having this list typewritten and in plain view of the operator many valuable minutes are saved at times when they count most.

## Scrap Workmen's Compensation in New York

The National Association of Waste Material Dealers, 170 Summer street, Boston, Mass., has issued a statement regarding the work of its Compensation Insurance Investigating Committee, which is in part as follows:

The New York State Insurance Department combined dealing in junk, scrap iron and scrap metal under one rate of $13.28. The recommendations of the committee to the department were that this classification be divided, due to the fact of a greater difference in the method of handling scrap metal than of handling scrap iron, and the hazard in each one of these trades differed. After considerable correspondence the recommendations were granted, and the new classification was made called "Metal Scrap Dealers," covering firms engaged in collecting, smelting, refining and shipping metals, whose rate of insurance is to be $3.24 per $100 payroll. Drivers and helpers engaged in the scrap metal business are now assessed at $2.20. Firms engaged in the handling of both scrap iron and metals are still to be continued under the junk or scrap iron rate of $13.28. The department maintains that the handling of scrap iron is very hazardous and that records show that the rate of $13.28 is equitable. Records also show that the men engaged in scrap metals are sometimes used in the scrap iron department. Concerns dealing in rags, paper stock, scrap iron and metals, that is, general junk dealers, can secure a division of their payroll, so that their rag sorters and handlers can come under the rate of old rags at $6.48 and those that handle scrap iron under the junk or scrap iron rate of $13.28, but this division can only be secured by personal application to the New York State Insurance Department, and dealers must show an absolute division of employees.

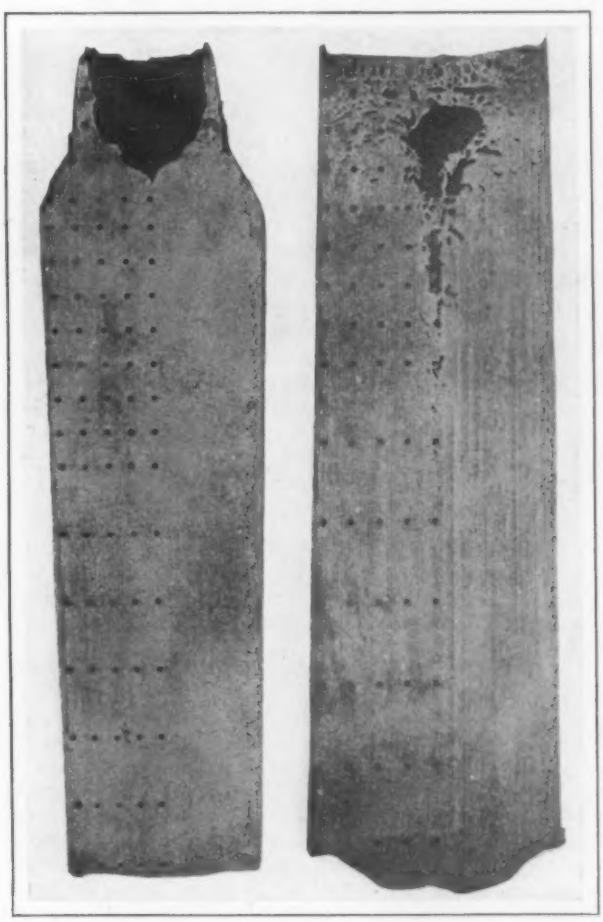
A special meeting of the American Society of Mechanical Engineers will be held in San Francisco in September. This is in addition to the regular spring meeting, which will be held at Buffalo in June.

# Sound Steel Ingots and Rails*

## Comparison of Ingots Poured by the Hadfield and American Methods and the Rails Rolled from Each

BY G. K. BURGESS AND SIR ROBERT HADFIELD

It was thought by Director Stratton, of the United States Bureau of Standards, and ourselves to be of sufficient interest and importance to compare the properties of rails rolled in one mill according to American practice, from several types of ingot of substantially the same chemical composition but cast by several processes; and to compare in considerable detail the properties of an ingot



Figs. 1 and 2—Split Hadfield (Left) and Split American Ingot, Showing Location of Drillings and Condition of the Interior

manufactured by the Hadfield special-feeding process and one of the usual type for rolling into rails.

We are greatly indebted to F. W. Wood, president of the Maryland Steel Company, who made this investigation possible by kindly placing his rail mill at our disposal; and he and his associates at Sparrows Point did everything possible to make the experiment a success, including the execution of several of the tests and analyses.

### CLASSIFICATION AND MANUFACTURE OF INGOTS

Of the ingots used in this investigation, eight were made in Sheffield and furnished by Sir Robert Hadfield, and one was made and furnished by an American steel company, as a comparison ingot, and was supposed to represent the usual type of ingot from which rails are made.

The characteristics of the ingots are given in Table 1. Ingots 1, 2, 3 and 4 were cast large end up and fed by the Hadfield method in the usual manner with charcoal and blast continued until the molten steel had set on the top of the head, varying from 20 to 40 min. To ingots 1, 2 and 4 was added 0.1 per cent. aluminum, and to the nickel-chrome ingot, No. 3, 0.125 per cent. For sake of comparison, there were also included two ingots, Nos. 8 and 9, cast with the small end up and fed by the Hadfield process; three ingots not fed, two of piping steel, Nos. 6 and 10, and one of rising or "unsound" steel, No. 7. The Hadfield ingot No. 1 and the American comparison ingot, No. 10, were cut up for examination as to segregation, blowholes and piping, while the others were rolled into rails. It was expected that ingots Nos. 2, 3 and 4 would give rails

*Table 1.—Classification of Ingots*

| No. | Size, in. | Wgt., lb. | Method of casting | Type of steel | Chemical analysis C | Mn | S | P | Si |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 18 | 5,964 | Hadfield, large end up. | Ordinary rail steel. | 0.59 | 0.97 | 0.041 | 0.031 | 0.21 |
| 2 | 18 | 6,006 | Hadfield, large end up. | Ordinary rail steel. | 0.55 | 0.96 | 0.043 | 0.029 | 0.12 |
| 3 | 18 | 5,900 | Hadfield, large end up. | Nickel-chromium steel. | 0.25 | 0.38 | Ni 3.70 | Cr 1.47 | 0.19 |
| 4 | 18 | 5,850 | Hadfield, large end up. | Ordinary rail steel. | 0.56 | 0.92 | S 0.040 | P 0.035 | 0.19 |
| 6 | 18 | 5,200 | Ordinary, small end up. | Ordinary rail steel which pipes, not fed. | 0.56 | 0.94 | 0.060 | 0.051 | 0.20 |
| 7 | 18 | 5,100 | Ordinary, small end up. | Ordinary rail steel of rising or boiling nature, not fed. | 0.57 | 0.95 | 0.080 | 0.045 | 0.20 |
| 8 | 18 | 5,700 | Hadfield, small end up. | Ordinary rail steel. | 0.58 | 0.96 | 0.070 | 0.051 | 0.23 |
| 9 | 18 | 5,700 | Hadfield, small end up. | Ordinary rail steel. | 0.59 | 0.96 | 0.054 | 0.040 | 0.20 |
| 10 | 19 | .... | American, ordinary manner, small end up. | Ordinary rail steel. | 0.46 | 0.94 | 0.05 | 0.09 | ... |

of a uniform quality throughout nearly the whole length of the ingot, and that No. 1, which was selected by chance from the specially fed ingots cast large end up, would show a uniform, sound structure throughout. Previous experience has shown that ingots of the type of Nos. 8 and 9, cast by the Hadfield process with small end up, would be expected to be less satisfactory than the Hadfield type represented by Nos. 2, 3 and 4, cast with large end up. The former sometimes show a tendency to develop a pipe at the lower end. Ingot No. 6 would be expected to show piping and segregation, and No. 7 segregation and unsoundness; for both of these ingots a much greater waste would be expected than for the specially fed ingots.

### EXAMINATION OF INGOTS

At the Pittsburgh laboratory of the Bureau of Standards two of the ingots were sawed in halves —Hadfield No. 1, of the specially fed type cast large end up, and the comparison ingot, No. 10, from an American mill. Figs. 1 and 2 are photographs of the two ingots showing the location of drillings and a comparison of their interiors. In Figs. 3, 4 and 5 respectively, are shown the segregation of carbon, phosphorus and sulphur for each of the ingots. A similar survey was also made for manganese, with

*From a paper to be read at the New York meeting of the American Institute of Mining Engineers, February 15, and published in the February Bulletin of the Society.

no considerable segregation of this element in either ingot. It is evident that there is freedom from appreciable segregation over 95 per cent. or more of the Hadfield ingot, which is also entirely free from piping or blowholes. The comparison ingot, if rolled into rails, should have about a 50 per cent. discard.

*Table 2. Rolling and Inspection of Ingots and Rails*

| Number of ingot | 3 | 2 | 4 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|
| Taken from pit at | 8 hr. 9 min. | 8 hr. 40 min. | 8 hr. 55 min. | 9 hr. 11 min. | 9 hr. 27 min. | 9 hr. 43 min. | 10 hr. 45 min. |
| Time in blooming mill | 1 min. 40 sec. | 1 min. 40 sec. | 1 min. 42 sec. | 1 min. 30 sec. | 1 min. 40 sec. | 1 min. 30 sec. | 1 min. 40 sec. |
| Average temperature of ingot in blooming mill, deg. C. | 1,100 | 1,115 | 1,110 | 1,110 | 1,135 | 1,150 | 1,125 |
| Time blooming mill to hot saw | 3 min. 50 sec. | 4 min. 10 sec. | 3 min. 23 sec. | 4 min. 5 sec. | 3 min. 20 sec. | 3 min. 15 sec. | 3 min. 22 sec. |
| Average temperature first rail bar at hot saw | 950 deg. | 960 deg. | 970 deg. | 970 deg. | 970 deg. | 980 deg. | 980 deg. |
| Average temperature second rail bar at hot saw | 945 deg. | 900[1] deg. | 950 deg. | 945 deg. | 955 deg. | 970 deg. | 965 deg. |
| Top bloom butt, per cent. of ingot | 4.2[2] | 5.6[2] | 7.8 | 12.9 | 5.0 | 5.1 | 6.3 |
| Total bloom butts, per cent | 7.2 | 7.4 | 9.7 | 14.7 | 8.0 | 6.8 | 8.3 |
| Oxidation loss, per cent[4] | 1.3 | 2.7 | 1.9 | 2.9 | 3.5 | 3.5 | 2.5 |
| Percentage of ingot available for rails | 91.5 | 89.9 | 88.4 | 82.4[3] | 88.5 | 89.7 | 90.2 |
| Rails: Percentage of firsts | 77.2 | 77.1 | 52.5 | 9.5 | 54.3 | 51.9 | 28.5 |
| Percentage of seconds[5] | 22.8 | 22.9 | 47.5 | 90.5 | 27.4 | 48.1 | 23.8 |
| Percentage of scrap[6] | 0 | 0 | 0 | 0 | 18.3 | 0 | 47.7[5] |
| Type of ingot | Special feed, large end up | | | Ordinary piping | Ordinary rising | Special feed, small end up | |

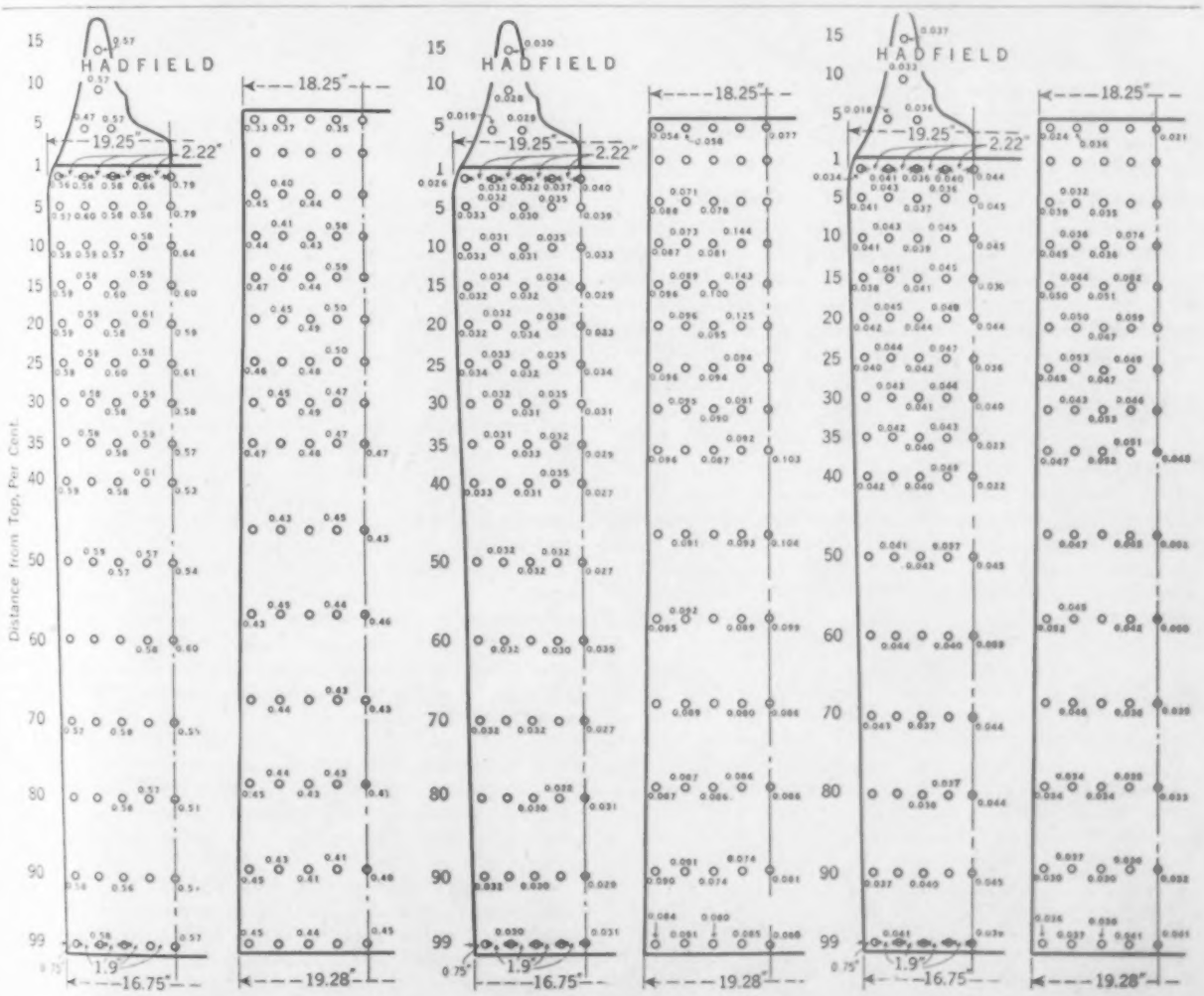
[1]Was held back before coming to saw. [2]Has been corrected as explained. [3]Contains pipe, however, extending into *C* rail. [4]It is to be kept in mind that all are reheated ingots. [5]Two rails, *C* and *D*, from middle of ingot were scrapped for mechanical defects. [6]This classification includes, of course, defects due to mill practice.

## MANUFACTURE OF RAILS

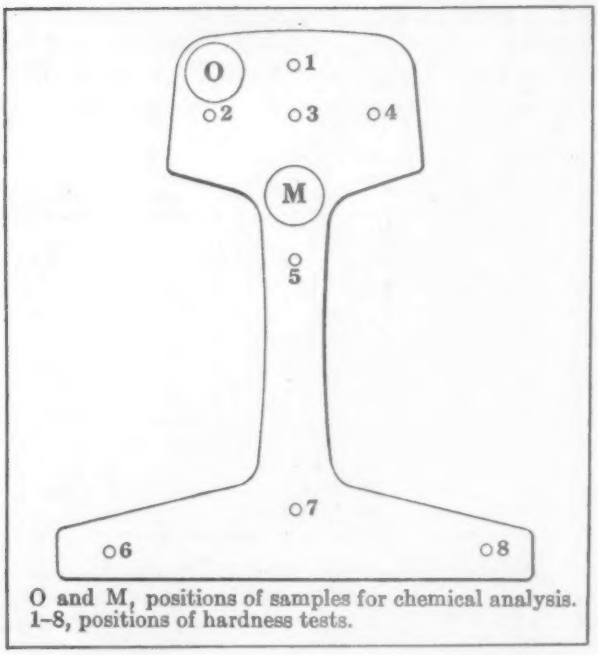
The ingots were charged into the soaking pits, which had been allowed to cool considerably on Sunday evening and rolled Monday, April 13, 1914, at 8 a. m., into 100-lb. P. S. section rails, the seven ingots being interpolated among other ingots. In the Maryland mill the rolling from ingot to finished rail is a continuous process without reheating of the blooms. In Table 2 are shown some of the characteristics of the rolling. Apparently through a misunderstanding of instructions and unfamiliarity with this type of ingot, the top bloom crops of the first two rolled, specially fed Hadfield ingots Nos. 2 and 3, were excessive, at least double what was necessary to carry the blooms through the rail mill. The other Hadfield and comparison ingots were sheared as instructed. The *A* rail was made the short rail, usually 6 to 10 ft. long, to be examined as to soundness. The drop-test specimen was cut next the bottom of this short *A* rail, a 13-in. specimen for tensile tests from the head of the *C* rail, and 3-in. pieces for chemical, metallographic, and hardness tests from the heads of the *A*, *B* and *C* rails.

## TESTS OF RAILS

The hardness tests, with the exception of those on rails with a pipe or seam (from ingots Nos. 6,




Figs. 3, 4 and 5—Diagram Sections of Hadfield and American Ingots Showing Segregation Comparison of Carbon, Phosphorus and Sulphur in Percentages. The Left-hand Pair Shows the Carbon Comparison; the Central Pair, the Phosphorus Comparison, and the Right-hand Pair the Sulphur Comparison. The Height of the Hadfield Ingot in Which Drillings Were Made Was 59 In., and of the American, 63 In.




O and M, positions of samples for chemical analysis. 1–8, positions of hardness tests.

Fig. 6—Rail Section Showing Locations of Samples

8, 9), show a high value of hardness numeral for position 5, Fig. 6, in the *A* rail. Otherwise the hardness is quite uniform over the sections, and from one rail to another, except, of course, for the nickel-chromium, No. 3.

The results obtained by the Maryland Steel Company for the drop tests are shown in Table 3; of inspection in Table 2 and physical tests in Table 4. The *O* and *M* analyses for all the elements and for the *A*, *B* and *C* rails will be given later in a complete paper.

For all the Hadfield ingots cast large end up the rail macrostructure is very uniform even over the web for the front end of an *A* rail. Rails from both the Hadfield ingots cast small end up show a very different macrostructure from the first group. It is interesting to note that the pipe of ingot No. 6 cast in the ordinary way is not accompanied by any considerable segregation. This pipe extends well into the *C* rail even after a top bloom discard of 13 per cent., confirming the characteristics of the split comparison piping ingot No. 10.

From the several tables of tests and from metallographic examination it is found that the percentage of ingot available for sound rails of uniform homogeneous structure is 91, 90 and 88 respectively for the specially fed ingots cast large end up, Nos. 2, 3 and 4, as compared with much less percentages of sound ingot metal usually available.

## GENERAL CONCLUSIONS

In all, nine ingots were used in this investigation; eight furnished by Sir Robert Hadfield, all but one of which had approximately the same chemical composition.

*Table 3.—Drop-Test Results*

100-lb. P. S. section; 3-ft. supports; weight of tup, 2,000 lb.; fall, 15 ft.

| Ingot No. | Blow | Per set | Elongation on base 1st in. | 2nd in. | 3rd in. | 4th in. | 5th in. | 6th in. | Total |
|---|---|---|---|---|---|---|---|---|---|
| 2 | First | 1.1 | 0.03 | 0.04 | 0.05 | 0.05 | 0.04 | 0.03 | 6.24 |
| 3 | First | 0.8 | 0.03 | 0.04 | 0.05 | 0.05 | 0.04 | 0.03 | 6.24 |
| 4 | First | 1.1 | 0.02 | 0.04 | 0.05 | 0.05 | 0.04 | 0.02 | 6.22 |
| 6 | First, pipe at fracture. | 1.0 | 0.02 | 0.03 | 0.04 | 0.04 | 0.03 | 0.02 | 6.18 |
| 7 | First | 1.0 | 0.02 | 0.03 | 0.04 | 0.04 | 0.04 | 0.03 | 6.20 |
| | Second | 1.9 | 0.03 | 0.04 | 0.06 | 0.06 | 0.06 | 0.06 | 6.31 |
| 8 | First, pipe at fracture. | 1.0 | 0.02 | 0.04 | 0.05 | 0.05 | 0.03 | 0.03 | 6.22 |
| 9 | First | 1.0 | 0.02 | 0.02 | 0.05 | 0.05 | 0.04 | 0.03 | 6.21 |

**The examination of the split ingots shows the great superiority of casting large end up and feeding by the Hadfield special process, such an ingot being physically sound and uniform throughout and practically free from chemical segregation.**

*Table 4.—Results of Tensile Tests Cut from Center of Heads of C Rails*

| Ingot No. | Yield point[1], lb. per sq. in. | Ultimate strength, lb. per sq. in. | Elongation, per cent. in 8 in. | Reduction of area | Fracture, per cent. |
|---|---|---|---|---|---|
| 3 | 98,700 | 177,300 | 9.75 | 27.3 | 100 silk, cup and cone |
| 2 | 69,100 | 119,600 | 14.00 | 25.2 | 10 silk |
| 4 | 69,000 | 118,600 | 12.00 | 26.0 | 10 silk |
| 6 | 69,300 | 119,300 | 14.00 | 27.3 | 10 silk |
| 7 | 67,000 | 120,600 | 11.75 | 23.6 | 10 silk |
| 8 | 69,000 | 119,600 | 12.00 | 20.4 | 10 silk |
| 9 | 68,000 | 119,000 | 1.75 | 20.4 | 10 silk |

[1]Yield point found by use of dividers and running the machine back until the point was found where there was a permanent stretch.

The examination of the rails shows that for ingots cast by the Hadfield process, those cast large end up will give rails of uniform quality free from flaws of all kinds; those cast small end up may show a soft region in the web of the *A* rail but are otherwise sound. Those cast in the ordinary manner from piping or otherwise unsound steel may or may not give sound rails, depending upon the condition of the steel.

In addition to the certainty of producing all sound rails by the special-feeding process from ingots cast large end up, there is a great saving in metal and a consequent increase in percentage of sound ingot available for rails—in these experiments an average of 90 per cent. for ingots Nos. 2, 3, 4, as compared with about 50 per cent. for the piping ingot and an uncertain amount from the rising type.

The usual physical and chemical tests do not appear to give an adequate measure of the quality of rails. For example, the results of the tensile and drop tests and chemical analyses would not separate the sound from all the unsound rails here examined.

The question may be asked, is it not worth while to use, in the manufacture of rails, only sound steel which is cast and rolled in such a manner as to make practically every rail a sound and safe one? We believe this can be done without excessive cost.

## Matthiessen & Hegeler Improvements

The Matthiessen & Hegeler Zinc Company, La Salle, Ill., will start another furnace within a few days, which will give the plant a total equipment of over 6000 retorts. The first unit of a ribbon mill will also be started in 30 days, as the melting and reheating furnaces for it will be completed by that time.

The company also recently authorized a 50 per cent. extension to its rolling mill, to consist of one pair of roughing and four pairs of finishing rolls and accessories, the building to cover about 23,000 sq. ft., and to be of the same construction as the present rolling mill building. The method of driving the rolls has not yet been decided, but the practice of steel mills and zinc mills, both in this country and abroad, is being carefully investigated before letting the contract for the machinery. A contract for a complete overhead crane and monorail system for the rolling mill was let some time ago, and this should be in operation before April 1.

The Matthiessen & Hegeler Zinc Company has also under consideration plans for a fireproof building to accommodate the machine shop, blacksmith shop, tin shop, carpenter and box shop, car repair shop, and store, contracts for which will probably be let in the near future. Following this will be the installation of a complete and modern equipment for handling and storing hard coal screenings.

## Test of New Stoker and Boiler Baffle

The annual meeting of the mechanical section of the Engineers' Society of Western Pennsylvania was held in its rooms in the Oliver Building, Pittsburgh, on February 2. J. A. McCulloch, engineer of the National Tube Company, was elected chairman; Edward D. Leland of the Philadelphia Company, vice-chairman, and J. C. Albert, Karl Nibecker and D. A. Polhemus were elected directors. John A. Hunter, steam engineer of the American Sheet & Tin Plate Company, read a paper on "Tests on a New Type of Chain Grate Stoker and New Method of Baffling Stirling Boilers." In his paper Mr. Hunter stated that there had recently been installed at the Vandergrift works of the American Sheet & Tin Plate Company, a combination of a comparatively new type of chain grate stokers and of Stirling boilers with a new method of baffling. The installation consists of seven class M-22 Stirling boilers nominally rated at 600 hp., containing 6032 sq. ft. of water heating surface and 396 sq. ft. of superheating surface. An individual unlined steel stack 72 in. in diameter and 150 ft. high above the breeching produces the draft. Each boiler is provided with one type L Green Engineering Company stoker, 10 ft. 6 in. wide by 12 ft. long, containing 126 sq. ft. of chain surface. The boilers are equipped with soot blowers having stationary and rotary nozzles. The water back designed by the Babcock & Wilcox Company has two separate water boxes placed one directly over the other and each is connected to the mud drum and front steam drum, insuring positive circulation to each box.

The tests were undertaken primarily to determine if the guarantees made by the Green Engineering Company for the stokers could be met. These guarantees were of a combined efficiency of boiler and grate of 74 per cent. when the boiler was operated between 125 and 175 per cent. of rated capacity, and also an overload capacity of 100 per cent. The tests were conducted according to the code of the American Society of Mechanical Engineers. Mr. Hunter presented a table, showing that efficiencies of from 67.7 to 79.8 per cent. and capacities of between 74 and 195 per cent. of the rating were obtained.

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Tungsten before the war was selling for about 67c. per lb. It now commands about $1.35 per lb. for immediate shipment.

## E. M. HAGAR RESIGNED

### Benjamin F. Affleck now President of the Universal Portland Cement Company

Edward M. Hagar resigned and Benjamin F. Affleck was appointed president and chairman of the Universal Portland Cement Company at a meeting of the board of directors held at Chicago, February 3. Mr. Hagar retires to assume the presidency of a new company which he is forming to acquire a chain of Portland cement plants serving a large part of the United States. His office and those of the new company will continue to be at 208 South LaSalle street, Chicago.

BENJAMIN F. AFFLECK

EDWARD M. HAGAR

The New and the Retiring Presidents of the Universal Portland Cement Company

Mr. Hagar has been at the head of the Universal Portland Cement Company since its organization in 1900 and under his direction its business has grown with conspicuous success from a production of 32,000 bbl. in 1900 to a present plant capacity of 13,000,000 bbl. annually. For several years the Universal Portland Cement Company, a subsidiary of the United States Steel Corporation, has been the largest shipper of Portland cement in the world. Mr. Hagar was for two years president of the Association of American Portland Cement Manufacturers and was the organizer of the Cement Products Exhibition Company, which has held annual industrial exhibitions since 1907. A graduate of the Massachusetts Institute of Technology in 1893 and of Cornell University in 1894, Mr. Hagar organized and conducted the business of Edward M. Hagar & Co., manufacturers' representatives in machinery lines in Chicago, prior to his connection with the cement industry.

Mr. Affleck's connection with the cement industry has been exclusively with the Universal Portland Cement Company, of which he has been general manager of sales since its organization.

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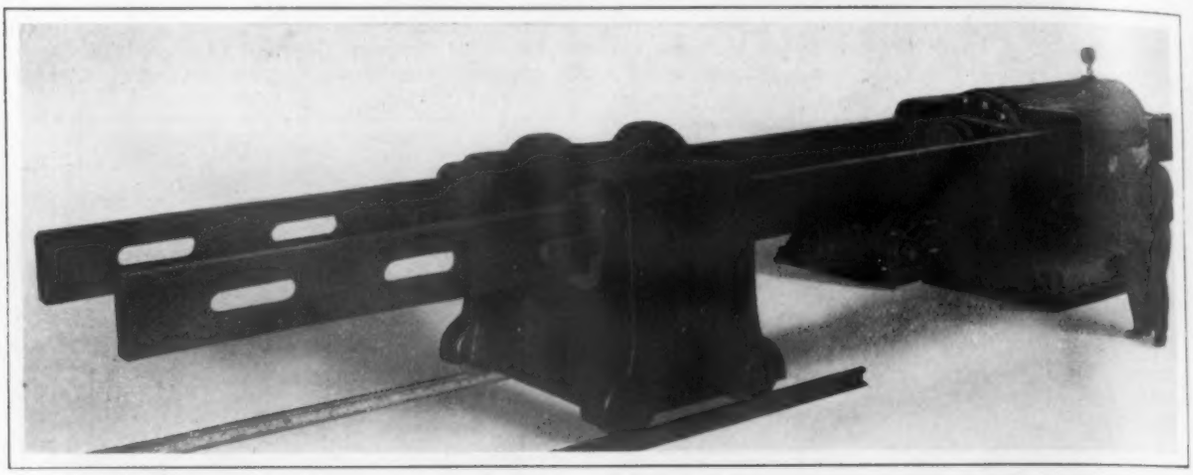
The Sharon Foundry Company, Sharon, Pa., held its annual meeting recently and re-elected officers for 1915 as follows: W. W. Shilling, president; Thomas Kennedy, secretary and treasurer; directors, W. W. Shilling, Thomas Kennedy, Harry Forker, J. P. Whitla, W. L. Wallis, George L. Collord, Joseph Riddell, J. E. Wood and Robert McIntyre.

## A 1000-Ton Hydraulic Forcing Press

The Treadwell Engineering Company, Easton, Pa., has recently completed what is believed to be one of the largest hydraulic forcing presses ever built in this country. It was especially designed for the Cuban-American Sugar Company for forcing sugar mill rolls off and on their shafts in its machine shops at Chaparra, Cuba. The press has a normal rating of 1000 tons, but is equipped with a gauge for recording pressures up to double that amount.



A Recently Completed Hydraulic Forcing Press Capable of Exerting a Pressure of 1000 Tons

The plunger is 20 in. in diameter, is packed with outside leather cuffs, and has three forcing speeds of 20.2, 0.4 and 0.6 in. per min. A triplex oil pump, driven by a 5-hp. motor with independent plunger control constitutes the pumping outfit. The valves for the pump are located in a separate block from the plunger, and are connected to the plunger chambers by seamless copper tubes. This arrangement enables the three plungers to be controlled by a single lever arranged so as to operate one, two or all three plungers and thus provide the required variation in the forcing speed. The gauge has a separate check which is relied upon to prevent damage to the recording hands when returning to zero after the pressure in the plunger cylinder is relieved. The pressure lines are made of seamless copper tubes, and have a pressure safety valve and a by-pass valve for returning the oil from the press cylinder to the oil storage tank located in the base. The tension bars, which measure 5 x 15 in. in section, are 30 ft. long, and were especially rolled for this press.

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The guayule rubber industry has been revived on a considerable scale in the Torreon district of Mexico. It is authoritatively stated that since November 1, 1914, this product to the value of more than $300,000 has entered the United States through El Paso and Eagle Pass. Several of the guayule rubber factories are now in full operation and many men are now employed on the different ranches in the states of Coahuila and Zacatecas cutting the guayule shrub. Plans are on foot for the extensive exploitation of the guayule shrub lands of the upper Rio Grande border region of Texas.

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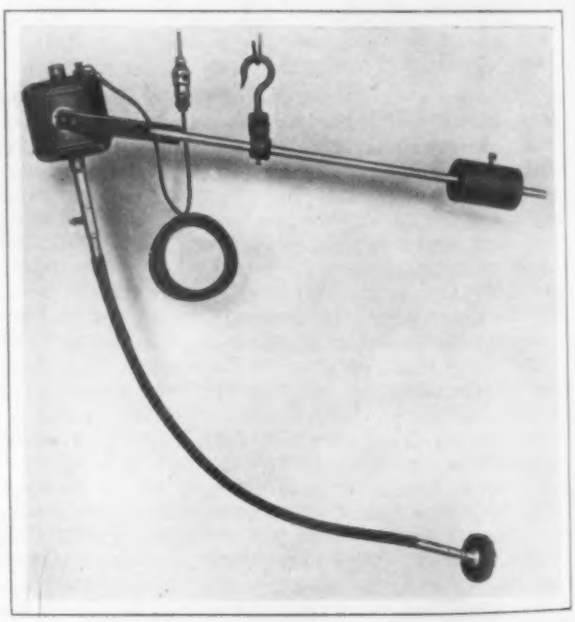
The American Shipbuilding Company has placed a contract with the Great Lakes Dredge & Dry Dock Company for the construction of a new dry dock 700 ft. long and 102 ft. wide at its South Chicago yard. Work will be started at once, it being planned to have the dock completed by September 15. The present dock at South Chicago is 564 ft. long and 70 ft. wide, not being large enough to accommodate the large ore boats.

## New Suspended Tool with Flexible Shaft

The Stow Mfg. Company, Binghamton, N. Y., has recently brought out two new types of flexible shaft tools. One of these, which is that illustrated, is a direct-connected drilling, buffing and grinding machine that is suspended from the ceiling, while the other is a general utility tool supported on a pedestal. Both of the tools take their power from the nearest electric light socket and are supplied with motors for use on either alternating or direct current circuits at potentials of 110 or 220 volts. The special advantage claimed for the suspended type of tool, which can have the point of suspension changed and the counterweight adjusted, is that no bench or floor room is required. The pedestal type of tool is designed for die sinking, drilling, buffing, grinding and driving screws. The speed of operation of the suspended and pedestal tools are 3400 and 400 to 7000 r.p.m., respectively.



A Suspended Type of Direct-Connected Tool for Drilling, Buffing and Grinding Equipped with a Flexible Shaft

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The plant of the Mesker Bros. Iron Company, St. Louis, has been put on 24-hour shift to fill a large order for field cooking ranges for the commissary department of a European government whose name is not divulged. The contract calls for the construction within 200 days of 2000 steel ranges mounted on wheels.

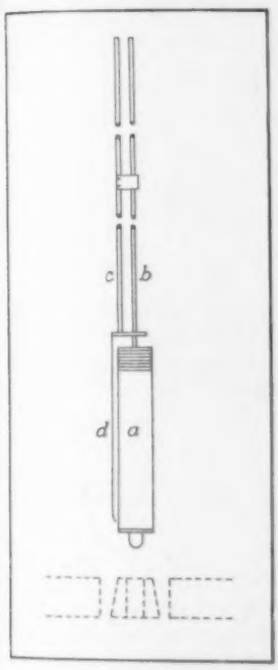
## PACKING INGOT MOLDS

### A New Device to Do Away with Present Awkward Methods

BY SIDNEY K. EASTWOOD

The accompanying sketch shows in detail the construction of a device for use in placing the asbestos packing around the tile in the bottom of circular ingot molds. The usual way of doing this is to drop the packing into the mold and then work it in place with a flat bar. The packer shown uses this same method but in addition has means for placing the packing in the mold and steering it into place.

It consists essentially of a wooden cylinder, *a*, turned to a size a little smaller than the top of the tile and with a point on the lower end which fits in the hole in the tile. This cylinder, which has a round iron washer attached to its lower end, is fastened to an iron rod, *b*, which is long enough to reach about a foot above the top of the mold. A piece of flat stock, *d*, an eighth of an inch thick and about 3 in. longer than the cylinder is bent as is shown in the illustration and is fastened at its upper end to another flat which has a hole drilled in it so that it will pass over the rod in the cylinder. This part of the packer is then fastened to another iron rod, *c*, as shown. This rod has a strap riveted to it which will reach around the other rod and serve as a guide to the motion of the packer iron *d* and prevent its cutting into the wood of the cylinder. When the whole is assembled, several rubber washers are slipped on to the central rod above the cylinder to control the downward motion of the packer iron.




New Device for Packing Ingot Molds

To use this packer, the packer iron is drawn upward by its handle and a piece of packing which has been twisted into a ring is slipped on to the cylinder. The whole device is then lowered into the mold so that the point of the cylinder fits in the hole in the tile. The packing is then worked off the end of the cylinder and on to the tile by the packer iron. The packing is then pushed into place and forced home by the use of the packing iron, which is worked in the same manner as the iron bar is used in the old method. The advantages of this packer over the old style way of using a bar are that no light is necessary to locate the tile, no time is lost in locating the packing after it is dropped into the mold, and the packing can be forced into place much quicker.

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In the iron, steel and by-product coke industry of the United States the consumption of sulphuric acid is estimated to be 200,000 tons annually, out of a total annual consumption of 3,250,000 tons. The fertilizer industry takes 2,400,000 tons of acid; the petroleum industry 300,000 tons and the explosive manufacturers 150,000 tons.

## An Improved Form of Belt Shifting Pole

To eliminate the accidents that are likely to happen when an operator climbs a ladder to put on or take off a belt by hand, various forms of belt shifting poles have been devised. The Ready Tool Company, Bridgeport, Conn., has developed one that is an improvement on the type in which a single pin is placed in one side of the stick near the end.

The device consists of one piece that is designed to be bolted to the regulation pole. A swivel fork supporting three rollers forms the essential portion of the shifting device and is held in place by a wing nut. Two of the rollers are tapered, which is relied upon to do away with any possibility of the hook getting caught and the pole being torn from the operator's hand and thrown across the room, and also to eliminate any chance of the belt binding. The use of the pole is brought out in the accompanying illustration, while the arrangement of the rollers is shown in the small insert cut. Since two of the rolls are tapered, it is pointed out that after the belt is placed in the fork the tendency is for it to slide on the pulley and for the forks in their turn to slide away.

Using a Recently Developed Belt Shifting Pole To Replace a Belt on a Pulley. The Device Proper Is Shown in the Small Insert

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### Large Continuous-Service Induction Motors

For continuous service, such as driving pumps, blowers, compressors, hoists and other machinery requiring heavy torque at starting, the Westinghouse Electric & Mfg. Company, East Pittsburgh, Pa., has placed on the market a line of large slip-ring induction motors. The bearings are dustproof and rest on three machined seats in accordance with standard steel mill practice, and the bearing shell may be removed and replaced without taking off the lower half of the bearing bracket.

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The increased antimony demand is reported to have resulted in the reopening of the mines at Lake George, York County, New Brunswick, which were worked many years ago.

# Methods Which Increase Foundry Output

## A Résumé by G. K. Hooper, Emphasizing the Advantages of Subdivision of Labor and Proper Arrangements of System, Appliances and Power

The Newark Foundrymen's Association, Newark, N. J., at a meeting held February 3, was addressed by G. K. Hooper, Hooper-Falkenau Engineering Company, New York, on "The Design of the Modern Foundry."

Mr. Hooper prefaced his remarks with the statement that he would have to deal largely with the general principles of his subject in view of the wide diversity of products manufactured by the members of the association. In part, he said:

In the early beginning of the foundry business so little information was available concerning its fundamental sciences of metallurgy, practical geology and the hydrodynamics of molten metal that skill in an operative was largely a matter of intuition or genius. The trade, therefore, being built upon this, has not adapted itself as freely as possible to the subdivision of labor and use of mechanical appliances as have other trades, and the productiveness of the labor in it has not advanced rapidly and is, I think, lower than in other mechanical trades. The processes also under this condition have a tendency to be wasteful in time and space.

### IMPORTANCE OF SUBDIVISION OF LABOR

In the foundry where no subdivision of labor is used productiveness averages, according to studies which I have made, from 50 to 60 per cent. With subdivision of labor and the use of mechanical appliances and power it rises to about 75 per cent. With well-arranged machine tools in the machinist trade, we are advised that the productivity of the labor has risen as high as 80 per cent. and on some classes of work to a higher figure.

As there are yet a number of foundry executives who believe that it is unwise, if not impossible, to use machinery and divide their labor or, in other words, to use what is known as the gang system, I would like to quote what Adam Smith, the first great expounder of economics, says about subdivision of labor in his work known as "The Wealth of Nations," written about 1755. He says:

> The greatest improvement in the productive powers of labor and the greater part of the skill, dexterity and judgment with which it is anywhere directed or applied seems to have been the effects of the division of labor.
>
> The great increase in the quantity of work which in consequence of the division of labor the same number of people are capable of performing, is owing to three different circumstances:
>
> 1. The increase of dexterity in every particular workman.
> 2. To the saving of time which is commonly lost in passing from one species of work to another; and
> 3. To the invention of a great number of machines which facilitate and abridge labor and enable one man to do the work of many.
>
> It is the great multiplication of the production of all of the different arts in consequence of the division of labor which occasion in a well-governed society that universal opulence which extends itself to the lowest ranks of people. Every workman has a great quantity of his own work to dispose of beyond what he himself has occasion for and every other workman being exactly in the same situation, he is enabled to exchange a great quantity of his own goods for a great quantity, or, what comes to the same thing, for the price of a great quantity of theirs. He supplies them abundantly with what they have occasion for and they accommodate him as amply with what he has occasion for and a general plenty diffuses itself through all the different ranks of society.

Mr. Smith gives also some statistics concerning results of subdivision in the pin and nail making industries generally as follows: With pins, one man by hand could make but about 20 per day or ten men could make 200 per day, whereas, by subdivision of the 18 different operations and with indifferent machinery, 10 men do make about 48,000 per day. With nails, he reports:

> A blacksmith who has been accustomed to make nails can seldom, with his utmost diligence, make over 800 to 1000 nails per day. I have seen several boys under 20 years of age who had never exercised any other trade but that of making nails and who, when they exerted themselves, could make, each of them, upward of 2300 nails per day, the same person blowing the bellows, stirring and minding the fire, heating the iron and forging every part of the nail, being also obliged to change his tools in forging the head.

We might conjecture from the foregoing that there were scientific management and efficiency experts even as early as 1750, and that achievement in the efficiency profession has fallen off since that time as no such percentages of improvement as the above figures entail are offered us today.

### SUBDIVISION PROPER IF OUTPUT IS LARGE

In the molding and casting operations a considerable number of foundries today do subdivide the labor on their product and employ separate labor gangs for pouring, shifting and shaking out, sand handling and core setting. Some objection is made to this practice, but, as you have just heard, it is sound economics to subdivide the labor when the amount of product warrants it and an increase of skill may reasonably be expected to result, giving an increased production with corresponding reduction of cost. Some confusion may arise at the commencement of such a method of operation, but this can be minimized by using the most skillful and intelligent operatives as gang bosses.

When quantities are large and the product such that a few sizes of molds may be standardized, even though of considerable variation in size, the operations of the molding machine, sand handling system, mold conveyor and shaking out conveyor may be conducted uninterruptedly throughout the working day. It has even been attempted to operate such plants by means of two or three shifts throughout the whole 24 hours. The success of this development so far is doubtful. You will recognize that such operation could not, in any way, increase the relative productivity of the labor.

### THE CONTINUOUSLY OPERATED TUMBLING MILL

Long tumbling mills have been attempted a number of times in which the castings to be cleaned shall be fed in at one end and discharged fully cleaned at the other. These present attractive possibilities when material is fairly uniform in size and shape and is not hollow, deeply cored, recessed or of considerable variation in size. In these latter conditions, it has been found that while certain sizes in the charge may be satisfactorily cleaned in this way the whole contents will not be as satisfactorily cleaned, so that on the whole these devices have been a success only where the work is very uniform in size and simple in nature.

With regard to the building which is to house

the proper arrangement of apparatus, Mr. Hooper said:

BUILDINGS SHOULD HAVE FLEXIBILITY

Care should be taken that no obstacle exists to the development of any particular function; that is, the building should be of such type of construction that changes in its form, openings, etc., may be readily made. The march of improvement is so rapid in this country that it is impossible to predict how often the manner of turning out product will be changed. The building, therefore, must be very adaptable. I personally prefer brick and steel construction to any other, and have had no reason to alter this opinion after our considerable experience in building this class of manufacturing plant.

Where much machinery is used, especially conveying machinery, it often develops that instead of using subgrade construction, an advantage, both in first cost and operation, is gained by making the building of more than one story. This has led to the so-called two-story foundry, which is in successful use where the quantity of production is great and the use of machinery extensive.

In sketching various of the many considerations which must be kept in mind in designing a foundry Mr. Hooper said that the sprinkler, metal window sash, wire glass and tile roof are big dividend payers to the foundryman. He also said:

In my belief a productivity of 75 per cent. is about the limit which can be reached in the foundry art with such operations as are necessary at this time. There may be, of course, individual instances which will exceed this, but the figure refers to the average. It may be that we shall find in the permanent mold a method which will considerably increase the relative productivity of the labor. Time studies on repetition work to which the permanent mold would be applicable show that there is many times as much labor consumed in making the present mold by present methods as is used in pouring and shaking out, while the material handled in the making of molds is frequently tenfold or more the weight of the castings produced. Also there are several pieces of equipment to be handled to one casting or gate of castings. If the permanent mold could be developed these ratios would be cut down and less material and fewer parts would be handled.

## Points Brought Out in Discussion

In the brief discussion which followed Mr. Hooper's paper reference was made to the failure of an attempt to cast soil pipe with permanent molds, and it was admitted that success has not been attained in this direction except in special cases. Instances were cited where the faces of the molds deteriorated very rapidly, while the metal would not run freely against the chill of the mold.

Mr. Hooper said that experiments in the rebonding of used sand were not yet completed, but he was hopeful of greater progress in this direction. He said mechanical methods give a better result than is obtained by hand-mixing. In the matter of lighting from the roof the speaker advocated small panes of glass set in cement tiles. He observed that no matter how well a foundry was ventilated there appeared to be a layer of dead air against the roof which served to prevent excessive radiation. Foundries do not require a great deal of steam heating. There should be enough to prevent freezing in the night and enough so that the men can go to work comfortably in the morning, later in the day the heat takes care of itself.

Questioned as to some way to prevent fog in the foundry when shaking out is going on, Mr. Hooper said he could only suggest good ventilation, but said it should be done by exhaust fans rather than by the introduction of cold air, as that made the steam and vapor all the greater.

ASSOCIATION TO DISCUSS LEGISLATION PROBLEM

In the course of the business meeting which followed Mr. Hooper's address, the matter of the association keeping in closer touch with legislation at Trenton was discussed, in view of the many bills constantly appearing which are adverse to the interests of manufacturers. It was reported that a move was under way to amend the New Jersey accident liability and compensation law, making it approximate the New York State law. The latter is considered the most drastic of any such laws. At the next meeting of the association it is expected that members of the New Jersey State Chamber of Commerce, the Newark Board of Trade and of the New Jersey State Manufacturers' Association will explain what may be done in the matter of watching legislation. Later a legislative committee will be appointed by the Newark Foundrymen's Association.

President H. P. Macdonald, Snead & Co., presided over the meeting, which was preceded by the usual dinner.

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## A Cast-Iron Pipe Handbook

The United States Cast Iron Pipe & Foundry Company has issued what it terms a catalogue, but which is really an engineers' handbook on cast-iron pipe. It is a cloth-bound book of 224 pages, 8 by 10½ in., and is profusely illustrated.

The introductory pages give a great deal of interesting historical information with regard to the use of pipe for conveying water, much attention being given to early methods. Coming to the modern form of pipe, the types of joints are illustrated and described. Separate chapters are then given to the consideration of independent high-pressure fire systems; the manner in which pipe is submerged for river crossings or intake lines; the use of pipe in conveying gas, and such general uses of pipe as for culverts or drains, sewers, filtration plants, compressed air lines, conveyance of steam, etc. Considerable attention is paid to the substitutes frequently used for cast-iron pipe, with data regarding the durability of cast iron, as also the means adopted for the protection of mains from electrolysis and from various forms of leakage. Practical instruction is given in making joints. The standard specifications of the American Water Works Association are printed in full.

Many pages are devoted to tables of value to engineers and contractors, covering such matters as standard dimensions and thicknesses and weights for each class of pipe intended for special service. These tables are accompanied by sectional drawings showing dimensions of parts. Attention is called to the company's line of flange fittings and its new line of bell and spigot pipe and fittings for high pressure containing a double groove in both bell and spigot. The part of the catalogue devoted to miscellaneous foundry products gives illustrations of a great variety of such products as are made by the company. This work is not intended for promiscuous distribution, but is supplied free to actual users of pipe or of large iron castings, who will be furnished copies on application to the Publicity Department, desk No. 5, United States Cast Iron Pipe & Foundry Company, Burlington, N. J.

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Imports of machinery have taken first place in Russia's trade in the last three years. They were $31,000,000 in 1906, $75,000,000 in 1912 and $85,000,000 in 1913. In the first five months of 1914 imports of machinery were valued at about $35,000,000, or more than one-seventh of the total imports, compared with about $25,000,000 for the same period in 1913.

# COMMERCE CHAMBER ACTION

## Business Questions Considered by the Chamber of Commerce of the United States

WASHINGTON, D. C., February 9, 1915.—Business problems of high significance to the industries of the country received serious consideration at the annual convention of the Chamber of Commerce of the United States of America, held in this city February 3 to 5. The extraordinary business conditions now prevailing, due to a variety of causes, have rendered these deliberations of special importance in view of the active part taken in them by the President, members of his cabinet and other high officials of the National Government and no little light has been thrown on such vital subjects as the desirability of combinations for the extension of export trade, the maintenance of resale prices, the scope of Federal regulation of business under the new Trade Commission, the protection of American investments in foreign countries, especially in Mexico, and the Administration's policy for the development of the merchant marine.

The announcement that Secretary of State Bryan would outline the policy of the State Department with respect to the protection which American investors may count upon for their enterprises in foreign lands aroused much interest, and some disappointment was therefore felt because his address was devoted chiefly to advice to exporters as to how they might best develop their foreign trade, especially that with South America. The remainder of his speech was a defense of the Administration's shipping bill. Immediately following Secretary Bryan, Samuel McRoberts, vice-president of the National City Bank of New York, made a spirited address, calling upon the government of the United States to afford its citizens the same protection for their investments in foreign countries that is given by the great nations of the world.

### PRESIDENT WILSON'S ADDRESS

A special session of the convention on the evening of February 4 was addressed by President Wilson. The large convention hall was crowded to its capacity. The most significant feature of the President's remarks was his discussion of the propriety of permitting organization of combinations of American manufacturers and exporters for the purpose of meeting the competition of like combinations—many of them under governmental protection—in the foreign trade. The President spoke extemporaneously and as a result his remarks have been garbled or distorted in the daily press and in view of their significance, especially as up to the present time the President has carefully refrained from expressing his views on this subject, his reference to this matter is here given in full as follows:

There is a specific matter about which I, for one, want your advice. Let me say, if I may say it without disrespect, that I do not think you are prepared to give it right away. You will have to make some rather extended inquiries before you are ready to give it. What I am thinking of is competition in foreign markets as between the merchants of different nations. I speak of the subject with a certain degree of hesitation, because the thing farthest from my thought is taking advantage of nations now disabled from playing the full part in that competition, and seeking a sudden selfish advantage because they are for the time being disabled. Pray believe me, that we ought to eliminate all that thought from our minds and consider this matter as if we and the other nations of the world were in the normal circumstances of commerce. There is a normal circumstance of commerce in which we are apparently at a disadvantage. Our anti-trust laws apparently—I say apparently because I see the Attorney General is present and I am not sure I am right—the anti-trust laws of the United States apparently make it illegal for merchants in the United States to form combinations for the purpose of strengthening themselves in taking advantages of the opportunities of foreign competition.

That is a very serious matter for this reason: There are some corporations and some firms, for all I know, whose business is great enough and whose resources are abundant enough to enable them to establish selling agencies in foreign countries, to enable them to extend the long credits which in some cases are necessary in order to keep the trade they desire; which enables them, in other words, to organize their business in foreign territory in a way which the smaller man cannot afford to do. His business has not grown big enough to permit him to establish selling agencies. The export commission merchant, perhaps, taxes him a little bit too high to make that an available competitive means of conducting and extending his business. The question arises, therefore, how are the smaller merchants, how are the younger and weaker corporations, going to get a foothold as against the combinations which are permitted and even encouraged by foreign governments in this very field of competition?

There are governments, which, as you know, distinctly encourage the formation of great combinations in any particular field of commerce in order to maintain selling agencies and to extend long credits, and to use and maintain the machinery which is necessary for the extension of business. American merchants feel that they are at a very considerable disadvantage in contending against that. The matter has been many times brought to my attention and I have each time suspended judgment, because in this matter "I am from Missouri," and I want to be shown this: I want to be shown how that combination can be made and conducted in a way which won't close it against the use of everybody who wants to use it. A combination has a tendency to exclude new members. When a group of men get control of a good thing they do not see any particular point in letting other people into the good thing. What I would like very much to be shown, therefore, is a method of co-operation, which is not a method of combination, not that the two words are mutually exclusive, but we have come to have a special meaning attached to the word "combination." Most of our combinations have a safety lock and you have to get the combination to get in. I want to know how these co-operative methods can be adopted for the benefit of everybody who wants to use them, and I say frankly, if I can be shown that, I am for them.

If I cannot be shown that, I am against them, and I hasten to add that I hopefully expect that I can be shown.

### COMBINATIONS TO PROMOTE FOREIGN TRADE

Following President Wilson's address, a special committee of the Chamber presented a report, which was adopted, advocating legislation specifically permitting combinations for foreign trade. The principles to be embodied in this legislation were set forth in this report as follows:—

1. All combinations entered into or carried on in good faith for the sole purpose of increasing, facilitating or benefiting export trade, including agreements, transactions and acts entered into, performed or carried out in the court of export trade, which do not restrain or monopolize or tend to restrain or monopolize trade within the United States shall be lawful.

2. The term "export trade" should be confined to trade or commerce from the United States to any foreign nation; and the term "foreign nation" should not include any of the insular possessions of the United States.

3. That the Federal Trade Commission should be given the same power with reference to organizations, associations, agreements, transactions or acts entered into, performed or carried out in the course of export trade which it has reason to believe restrains or monopolizes or tends to restrain or monopolize trade within the United States, as it has under the Federal Trade Commission act in the matter of unfair methods of competition.

4. That none of the powers conferred upon the Federal Trade Commission in the act entitled "An Act to Create a Federal Trade Commission," etc., should be in any way abridged in such a bill.

In urging the enactment of a bill for this purpose the committee called attention to the fact that Congress has already taken an important step in differentiating between the regulation of foreign trade and interstate trade in the law supplementing the Sherman act, approved October 15, 1914, and popularly known as the Clayton act. In that act Congress indicated that so far as the export trade is concerned it has no objection to discriminations in prices and to exclusive agency contracts, even though their results may substantially lessen competition or even tend to create a monopoly in a line of commerce.

### MANUFACTURERS' RESALE PRICES

The right of a manufacturer to fix the prices at which his goods may be sold at wholesale or retail, denied by recent decisions of the United States Supreme Court under existing laws, was the subject of an elaborate report by a special committee. In summarizing the advantages of a price maintenance system the committee contended that the producer profits

by the protection of his distribution and of his good will property rights; the wholesaler, by the protection of fair profits guaranteed in return for a useful service rendered, is saved from monopolization or complete annihilation; the large retailer loses the undeniably valuable privilege of advertising the willingness of his store to give low prices on commodities whose quality is guaranteed by their maker and namer; the small retailer loses nothing and in many lines is preserved from annihilation of profits, and those consumers who are not customers of a price-cutter lose nothing and are protected in their purchases of identified merchandise, while those who are customers of price-cutters lose the difference between standard and cut prices, but have preserved for them the benefits of production initiative and the ability to buy identified, guaranteed merchandise free from the restrictions of monopolistic retailing. The committee presented the following recommendations, which were adopted:

From our consideration of the evidence which we and others before us have collected, we are convinced that in this case the condition is serious and that instead of correcting itself without law it eventually must grow worse. Federal legislation undertaken in a matter of this kind we believe should have as its main object the protection of the best interests of the whole people, and we believe also, that such legislation should aim to secure to the public at large all possible benefits from progress in production and in distribution methods. From our investigation and from those which have preceded ours we believe that price maintenance, under proper restrictions, would accomplish both of these ends.

We are informed that the Bureau of Corporations now has nearly completed an inquiry into this subject which is to be transferred to the Federal Trade Commission. We share in the public anxiety that this inquiry be pushed with all promptness compatible with thoroughness. We urgently recommend, therefore, that the Chamber of Commerce of the United States of America urge upon the Federal Trade Commission, when formed, the importance of completing this inquiry and presenting their findings to the president and Congress at the earliest feasible date.

Your committee is convinced that legislation permitting the maintenance of resale prices, under proper restrictions on identified merchandise, for voluntary purchases made and sold under competitive conditions, would be to the best interest of the producer, the distributor and of the purchasing public, or consumer.

The generally accepted report that Commissioner of Corporation Davies is to be the head of the new Federal Trade Commission invested with much interest an address delivered by him before the convention on the general subject of the scope and functions of the commission. He analyzed in detail the recently enacted anti-trust legislation, including the law creating the commission, and made it clear that, in his conception of the functions of the commission, it will be its duty to prohibit all acts of unfair competition the moment they are brought to the commission's attention. The Trade Commission, he said, was designed as an agency "to destroy the very seeds of monopoly in their germination rather than to permit them to develop into a vigorous and rank growth which will throttle the healthful upshoots in the industrial field."

### THE SHIP PURCHASE BILL

The liveliest controversy of the convention was precipitated by the presentation of a report opposing the Administration's ship purchase bill, accompanied by the dissenting views of a minority of the committee having the matter in charge. Upon the formal presentation of these reports Secretary of the Treasury McAdoo addressed the convention advocating the ship purchase bill, while Senator Theodore E. Burton, of Ohio, the leader of the opponents of the measure in the Senate, spoke against it. These addresses aroused the convention as did no other feature of its deliberations. When the majority report was brought to a vote 163 delegates favored it, while 90 opposed it, whereupon the chair ruled that the motion for adoption failed, as a two-thirds vote was required under the by-laws of the Chamber for the adoption of any report. An effort was then made to secure the adoption of the minority report, but this was overwhelmingly rejected without the formality of a division, by a viva voce vote, whereupon the question was ordered to be made the subject of a referendum.

Secretary of Commerce Redfield, in an address delivered at the banquet of the Chamber, made a strong plea for "fair treatment of business by business." Referring to the Administration's ship purchase bill, he declared that steamship companies have "deliberately, cynically, and openly broken written contracts," and that a tremendous force of public opinion would develop against such practices when they became known. The Department of Commerce, he said, was endeavoring to serve the business men of the country in every possible way and was beginning to see signs of very encouraging progress. Honest business methods, however, must be employed by manufacturers, merchants and exporters if they would hope to reap the greatest rewards of their own enterprise, especially in the foreign trade. He added that it was the duty of business men to "stop crooked manifests, incomplete manifests, things concealed and things painted to resemble other things." In conclusion he said that "the attitude of business toward business is more essential to American commerce today than the attitude of the Government toward business." W. L. C.

## SAFETY IN MACHINE SHOPS

### Inadequacy of Guards for Overhead Belts—Less Hand and More Machine Work

From a paper presented by W. P. Eales, supervising inspector of the Travelers' Insurance Company, Philadelphia, before the second annual Pennsylvania Industrial Welfare and Efficiency Conference at Harrisburg, the following notes have been taken:

The necessity for guards beneath overhead belts more than 7 ft. from floor or platform is influenced by the size and speed of the belt, as well as the hight of the pulleys and the distance between them. Some guards already installed are inadequate to withstand the shock or blow that would be delivered by a broken belt, and to my mind such guards have not improved matters, but have increased the hazard; unless these guards are very substantial, fitted close to the belts and well up and around the pulleys, I believe that it is better to omit them altogether.

There are many belts that are not directly over aisles or passageways, nor adjacent to them nor above the heads of workmen while at their regular place of employment, and such belts should be excepted from this requirement.

Belts with cemented joints are the most desirable, and next in favor are those laced with rawhide, especially when used for change belts on cone pulleys. A considerable number of accidents are reported that have resulted in cut hands due to changing belts laced or joined by wire or metal clips, cleats, rivets or toggles.

A tight and loose pulley equipment is not complete unless provided with a mechanical belt shifter, consisting of a device that is permanently held in fixed ways or guides. Belt shifters should be arranged to be locked in position, so that the belt cannot creep from the idler on to the fixed pulley. There are a very few instances in which we are behind foreign countries, but this is one of them.

Machine shops are not generally regarded as being hazardous, as compared with rolling mills, yet our experience is often directly opposite to this. The character of the work in machine shops has changed considerably during recent years, the proportion of machine work having increased and that of fitting-up, bench and file work having decreased. Skilled hand work at the bench has given way to accurate and precise tool work, and the machine tool hazard and the consequent accidents have increased in the same ratio. Fully 50 per cent. of the accidents in machine shops are attributed to the lack of safeguards; yet the opposition to guards by the entire force is more pronounced in these shops than in other industrial plants.

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The Fairbanks-Morse Mfg. Company, Beloit, Wis., has presented five gas engines of various sizes and types to the class in gas engine design and practice of the industrial school conducted twice a week in connection with the course in the local high school. The class instructor is E. J. Wilkinson, practical designer and gas engine expert for the Fairbanks-Morse works in Beloit.

# CAMBRIA STEEL COMPANY

## Report for Year Ended December 31, 1914, Shows Marked Decrease in Earnings

The volume of business done by the Cambria Steel Company in 1914 was less in all lines than in the record year of 1913 and the net earnings fell off to but 31 per cent. of the previous year. The total income in 1914 was $3,115,931.64 or approximately 40 per cent. of that for 1913. The income account for 1914, compared with 1913, is as follows:

| | 1914 | 1913 |
|---|---|---|
| Operating income | $2,991,798.23 | $7,579,813.46 |
| Rents, investments, etc. | 124,133.41 | 208,156.11 |
| Total income | $3,115,931.64 | $7,787,969.57 |
| Extraordinary replacements and exhaustion of minerals | 637,837.16 | 1,099,439.73 |
| Net | $2,478,094.48 | $6,688,529.84 |
| Fixed charges | 517,104.54 | 453,579.90 |
| Net income | $1,960,989.94 | $6,234,949.94 |
| Dividends | 2,250,000.00 | 2,700,000.00 |
| Net surplus | $289,010.06* | $3,534,949.94 |

*Deficit for the year, provided from undivided surplus December 31, 1913, which is now $20,231,165.78.

In the year 1914 expenditures for plant additions totaled $3,717,785.83, the principal items being additions in the electrification of the coal mines and improvements in haulage, ventilation and pumping, rebuilding of 114 by-product coke ovens and the construction of 50 new ovens, remodeling seven blast furnaces, replacing two obsolete mills by a single new one, and the installation of additional machinery throughout the plant.

The production of pig iron in 1914 was 858,580 gross tons, as compared with 1,006,172 tons in 1913; steel ingots, 1,188,240 tons in 1914, against 1,495,546 tons in 1913. Shipments of finished products amounted to 783,922 tons in 1914, as compared with 1,062,737 tons in 1913.

### President Donner's Interesting Remarks

In his accompanying remarks to the stockholders, President William H. Donner says:

"Net earnings for the year were $1,960,989.94 or 4.36 per cent. on the outstanding capital stock, being but 31 per cent. of the earnings for 1913. Notwithstanding the unsatisfactory showing this year the quarterly dividends of 1¼ per cent. have been maintained in view of the large surplus and the earnings of the company in recent years; but the large expenditures for improvements, additions to equipment, replacements and alterations and increase in inventory made it advisable to conserve the company's cash resources. Consequently the quarterly dividends of November, 1914, and February, 1915, were declared in scrip payable in two years with interest at 5 per cent. per annum.

"During the year 1913 there was such a scarcity of labor for operating the works, it was impossible to make the replacements and improvements contemplated. Owing to the recession in business during the year 1914, conditions have so changed that it has been a problem to provide work for the employees. The management did this by making many needed replacements and improvements, aggregating $3,717,785.83, the largest amount expended in any fiscal year, which has been a great help toward the maintenance of an efficient organization. The expenditures have been made to increase the efficiency of the works by improving the quality of product and decreasing costs. Owing to the uncertainty of conditions, there has been no effort to enlarge the works, but the capacity has been increased principally through greater efficiency.

"During the year 1914 the steel industry suffered a curtailment of operations and a decrease in prices though the labor rates established in 1913—the highest ever paid by the company—were maintained, and these conditions are unmistakably reflected in the results of the year. The net earnings per ton of finished product were the smallest in the history of the company; annual net earnings were less a few years ago, but since then approximately $8,000,000 has been spent in improvements and the production of the works increased and diversified. Prior to August the new tariff law was the chief disturbing factor, permitting foreign manufacturers to quote exceedingly low prices which the American mills were compelled to meet. Later the European War completely unsettled financial conditions throughout the world. In October the financial situation was relieved and has since been gradually improving.

#### CUSTOMS DUTIES DISCUSSED

"It is to be regretted that the tariff cannot be considered broadly as a business proposition and handled on a scientific basis. Many persons are attracted by the theory that the steel industry in this country needs no protection because of our superior plants and the greater efficiency of American labor. In this day and age of skillful engineering and wide intercourse, however, it is not possible to have more economical plants in America than elsewhere, except temporarily. The foreign manufacturer is able to undersell in this country because of higher priced labor in the United States, which adds to the cost of plants as well as operating costs. Foreign laws also permit a closer co-operation among the manufacturers in both domestic and export trade. In periods of prosperity abroad, the foreign mills can sell their entire output more profitably outside of the United States, but when their markets fail, it is quite an advantage to them for the American tariff to be low enough to permit their selling a portion of their product in America, even at cost if necessary, to help pay fixed charges and maintain their organizations. This policy is very beneficial to the foreign manufacturer, but demoralizes the Aemrican market. Thus a tariff that is harmless to the steel industry of the United States one year may be ruinous the next, depending upon the business of our foreign competitors. It is unfortunate that these facts are not more generally known and appreciated.

"There is probably no manufactured product in this country, the demand for which fluctuates so violently as steel, depending upon general business conditions. It has been described as 'either a feast or a famine.' With cheap ocean freights from foreign countries, a very low tariff (in some instances none) and special import railroad rates, American manufacturers of steel are heavily handicapped. It has been erroneously stated that the tariff affects American manufacturers in a few coast cities only. On the contrary, the import rail freights on steel are lower from ports on the seaboard to many interior points where business is done by this company, that the rate from its works in Johnstown to these same points, a few instances of which may be seen in the following table:

*Freight on Wire and Bar Iron Via Rail*

| | | Rate per cwt., cents | Distance, miles |
|---|---|---|---|
| Domestic | Johnstown to Chicago | 20.4 | 545 |
| On import | Baltimore to Chicago | *18 | 782 |
| On import | New Orleans to Chicago | †17 | 930 |
| On import | Galveston to Chicago | †17 | 1,148 |
| Domestic | Johnstown to St. Louis | 25.1 | 696 |
| On import | New Orleans to St. Louis | 21 | 718 |
| On import | Galveston to St. Louis | 21 | 864 |
| Domestic | Johnstown to Cincinnati | 17.3 | 387 |
| On import | New Orleans to Cincinnati | 12.5 | 836 |

(Pittsburgh rates are 1½ cents less than Johnstown rates to Western points.)

*Wire only.
†Bars only.

"The freight discrimination in favor of imported steel is unfair and should be adjusted. There never was a time when the steel industry needed low transportation rates for assembling raw materials and distributing its products more than it does to-day, not withstanding the fact that the railroads need and should have more revenue.

#### AMERICAN PRODUCTS SHOULD BE PROTECTED

"As American workmen are protected against the importation of foreign labor, it is inconsistent not to protect them against the product of foreign labor. That the higher American wage level is a decided advantage to our public welfare is virtually admitted by all, but it should be understood that to maintain this standard a fair tariff tax is necessary.

"In 1914 this company and its subsidiaries paid $12,288,651 in wages directly to its own employees. In addition to this, over $16,000,000 were paid for freight and material purchased, a large portion of which sum of course was applied to the labor employed in production and transportation of same.

"It is unjust that foreign makers of steel, who on account of cheaper labor can build and operate their works for less money than American manufacturers, should be permitted to sell their product in this country and demoralize prices whenever conditions suit their convenience without paying a substantial tariff tax. They compete with and displace American labor and manufacturers, who have their capital invested in this country and continuously pay municipal, county, state and Federal taxes, those paid by this company in 1914 amounting to $516,368.

"America is by far the largest producer and consumer of steel in the world and under fair business conditions should maintain her supremacy. The present tariff will necessitate the use of rich and cheaply mined ores and restrict expansion of the steel industry. New steel works under construction in this country will of necessity be completed; others will require additions to round them out so as to operate economically. All operations from mine to finished product must be consolidated in order to derive any profit. American capital invested in the steel industry must make the best it can out of the present uncertain situation. The Cambria Steel Company has not hesitated to improve its works and has also given its shareholders all that it has been possible to distribute. Trade is far from normal, but the market is broadening and better business is hoped for. Specifications received in December were larger than in November and have been more than maintained during January. Although the future cannot be predicted, with a continuance of the large trade balance in America's favor as established in December, it would seem that business should continue to expand and the company is in excellent position to take advantage of any improvement."

## American Can Company's Year

The report of the American Can Company for the year ended December 31, 1914, which has just been issued, gives the following income account, which is herewith compared with that of the previous year:

| | 1914 | 1913 |
|---|---|---|
| Net profits | $5,807,802 | $6,245,679 |
| Improvements to plant, etc. | ..... | 612,762 |
| Balance | $5,807,802 | $5,632,917 |
| Depreciation | 750,000 | 600,000 |
| Balance | $5,057,802 | $5,032,917 |
| Interest and discount on debentures | 681,628 | 1,050,000 |
| Balance | $4,376,174 | $3,982,917 |
| Preferred dividends | 2,886,331 | 2,886,331 |
| Surplus | $1,489,843 | $1,096,586 |

The balance sheet, as of December 31, is as follows:

| *Assets* | 1914 | 1913 |
|---|---|---|
| Plants, real estate, patents, etc. | $70,080,082 | $70,357,369 |
| New construction | 14,452,334 | 13,635,635 |
| Other investment items | 1,276,185 | 515,580 |
| Cash | 4,790,148 | 4,863,924 |
| Accounts and bills receivable | 3,909,285 | 3,366,363 |
| Materials and products inventory | 8,961,503 | 9,729,702 |
| Total | $103,469,540 | $102,468,575 |
| *Liabilities* | | |
| Preferred stock | $41,233,300 | $31,233,300 |
| Common stock | 41,233,300 | 31,233,300 |
| Debenture bonds | 13,448,000 | 14,000,000 |
| Accrued interest on debenture bonds | 280,166 | 291,666 |
| Accounts payable | 914,406 | 1,146,370 |
| Dividends payable Jan. 1, 1915, and 1914 | 721,582 | 721,582 |
| Contingent funds | 1,746,144 | 1,439,558 |
| Surplus | 3,892,639 | 2,402,797 |
| Total | $103,469,540 | $102,468,575 |

The operations of the year are further set forth in the accompanying remarks of President F. S. Wheeler, who says:

"The usual conservative methods employed in making up the company's annual statements have been followed. The earnings for the year are shown after reductions in the inventory made necessary by declines in value of the company's principal raw materials. There has also been charged against operations $400,946 to cover expenditures for improvements and betterments to various plants which did not actually increase productive capacity. New construction and new equipment clearly chargeable to capital account amounted to $1,651,429. The new Illinois plant in Chicago has been completed and will soon be in operation. The plants have all been maintained in the best possible condition.

"Considerable sums have been spent in improving the working conditions affecting the safety, health and comfort of the employees. The results obtained have been so satisfactory that further plans are being considered.

"The year 1914 demonstrated once more the stable and reliable character of the company's business. Sales for the year increased slightly more than 5 per cent. in money value and, as prices of its products rule lower, the actual increase in volume was greater than indicated by the value of sales. No appreciable portion of this increase can be attributed to the war. Moreover, in spite of greatly disturbed financial conditions due to the war, collections continue at a normal rate; losses from bad accounts (never a large percentage with this company) were less than in 1913. Considering the large number of customers, their distribution over all sections of the United States and the diversity of trades supplied, this result is a high tribute to the class of customers who favor the company with their patronage.

"Scientific research work on the subject of canned foods has been actively maintained with excellent results. This work has been done in co-operation with the Federal and other authorities and some of the increase in business can be attributed to previous work of this character. The quality of canned foods has been improved and many old prejudices have been removed. These factors have caused and will cause a continued growth in the industry.

"Last year you were advised that the Government had brought suit against the company for alleged violation of the Sherman act. In November last the testimony for the prosecution was completed and testimony for the defense has since been and is being introduced. The officers and counsel feel confident that this defense will be successful.

"In forecasting the coming year, the prospects are satisfactory. Contracts in hand and trade which can be reasonably counted on indicate a good volume of business."

## What to Expect When the War Ends

Much speculation is being indulged in as to what may happen after the great European conflict ends. The opinion is entertained in some quarters that Europe will be so impoverished by that time that the purchasing power of the leading countries will be so impaired that the process of recovery will be slow and that all branches of trade will be far from prosperous. It is interesting in this connection to note what is said by the financial editor of the New York Evening Post, under date of February 6:

"Would the ending of the war, whether years from now or only months, cause prompt and immediate return to financial enthusiasm, or would all the markets shrink from the possible consequences of the European credit readjustment? Return of peace would end the process of wasting the capital of the world; it would terminate the dangers of neutral complications; it would reopen the seas to unrestricted commerce with all the world.

"Yet it would also foreshadow removal of the props underneath the prodigious structure of emergency credit on the European markets. It would derange such foreign trade as we have built up in consequence of the war itself. In Europe, it would replace the period of lavish public expenditure with an era of close economy. The problem is extremely interesting. Perhaps the most positive reliance that we have is the firm belief of European financiers that in the era of reconstruction of Europe's ruined tangible property, recourse to American industries will be unavoidable, and on a scale without parallel in recent history."

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# THE IRON AGE

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## Disburden American Ships

In an address before the convention of the Chamber of Commerce of the United States at Washington last week, Secretary of the Treasury McAdoo vigorously defended the pending Federal merchant-ship purchase bill. Some of the arguments he used are especially noteworthy for their general application to the present unsatisfactory shape of our merchant marine. Every American will agree with the following sturdy declaration:

> Where the vital interests of this nation are at stake, where the lives of its citizens are involved, where the property of its citizens is put in peril, it is the function of government, regardless of cost, to come to the relief of its people. When American commerce as today is in jeopardy; when, through acts of belligerent nations, a belligerency in which the innocent American people had no part, freight rates are soaring to impossible points, hampering our commerce, I have no patience with the idea that the American Government must sit with fettered feet and trammeled hands and refuse to protect the American business man and producer.

In view of the fact that the navigation laws of the United States are a serious impediment to the successful operation of ocean-going ships in competition with those sailing under the flags of other nations, the stirring words of Mr. McAdoo should arouse our lawmakers to the consideration of other measures to help the development of American commerce than merely the authorization of the purchase of ships by the Government. American owners of ships have long been "fettered" and "trammeled" by regulations and restrictions which would be well enough in their way if no other than American conditions were to be considered, but which add so heavily to the cost of operating American ships as to give foreign owned ships, which are free from such restrictions, an overwhelming advantage. It is safe to say that, but for the scarcity of ships in the oversea trade, which has caused rates for carrying freight to rise to a dizzy hight, there would not have been even the recent moderate increase in ocean shipping under the American flag.

The eloquence and energy of Mr. McAdoo and other enthusiastic modern discoverers of the pressing need for an adequate merchant marine should not be permitted to apply solely to the support of the ship purchase bill. The occasion calls for a far wider view. While attention is riveted on this subject, Congress should move in the direction of laying the foundation for the encouragement of private ship owners by enabling them to operate their ships as cheaply as their foreign competitors. All restrictive laws should be either repealed or properly amended.

## The Merchant Blast Furnaces

Attention is attracted to the fact that while since the first of the year the steel works have been increasing their pig-iron production materially there has been practically no increase in the output of merchant iron. Our blast-furnace reports have shown a net decrease of one in the active merchant furnaces in December and a net increase of one in January, while production does not seem to be increasing. The steel-works furnaces showed a net gain of more than a dozen in January and will show a further gain this month.

In the past three months the merchant-furnace output has averaged about 15,500 tons a day. In July, 1911, a low point, it dropped to 15,000 tons. Previous high points for merchant-furnace output were 28,600 tons daily in November, 1909, and 27,600 tons daily in October, 1907. At neither of the two periods last cited were the merchant furnaces operating in full, and an estimate of the merchant-furnace capacity commercially available in October, 1907, would doubtless have been at least 31,000 tons daily. If so, the merchant-furnace production in the past three months has been only 50 per cent. of the capacity in existence seven years ago.

What the merchant-furnace capacity is at present can scarcely be conjectured. Quite a number of merchant furnaces have been built in the past seven years, and others have been improved, so that if the output at present is 50 per cent. of the capacity of seven years ago it is a considerably smaller percentage of the existing capacity.

Noting that while the steel works recently dropped their steel making operations to considerably below 50 per cent., while their pig-iron production did not drop as low as 50 per cent., it would appear on the surface as if many of the merchant furnaces were in a bad way. It is generally recognized that some of the idle stacks have costs that are dollars per ton above the going market. Iron and steel trade developments have always had a habit of presenting surprises, and it does not follow that if there were a general and large increase in demand for iron and steel the merchant furnaces as a class would not participate in the prosperity. The very fact that of late the operations at steel works have dropped to lower percentages of capacity

when rated in terms of steel ingots than when rated in terms of pig iron may indicate that, while the steel interests have been building toward a state of balance between pig iron and steel capacities, they may have increased the former more than the latter to such an extent that the next time they are put under pressure they may call for more merchant pig iron than is generally expected. The merchant furnaces have a regular trade among foundries and detached steel works, the demand from which moves up and down, and then they have at certain times a demand from the so-called self-contained works that appears only when the regular trade is also booming.

## British Iron and Steel Advances

While iron and steel prices in Great Britain tended to stiffen in the first two or three months of the war, it is only in the past few weeks that sharp advances have appeared. Comparing prices quoted in our cable of July 29 with prices cabled last week the following advances appear:

Hematite pig iron, $8.75 per gross ton.
Cleveland pig-iron warrants, $1.34.
Middlesbrough No. 3 foundry, $1.34.
Sheet bars, delivered Swansea Valley, $7.29.
Steel rails, $9.11.
Joists (beams), $10.88 per net ton.
Ship plates, $10.33 per net ton.
Steel bars, $10.88 per net ton.
Black sheets, No. 28 gauge, export, $5.96 per net ton.
Tin plate, 58 cents per box, 108-pound.

It has been understood in a general way that advances in the British market were being caused by certain difficulties in transport of raw materials from abroad and by shortage of labor. A study of the details of the advances just cited confirms the understanding. Thus, hematite pig iron, which is made largely from Spanish ore, has advanced six or seven times as much as Cleveland iron, made from local ores. That there should be any advance at all in pig iron is noteworthy, seeing that exports have been running at a rate of 2,000,000 tons a year less than a year ago and the domestic demand, except for war purposes, is also reduced.

The advances in beams, plates and bars are almost the same, about half a cent a pound, while the advance in rails is somewhat less. The figures hang together, as rails involve less labor than the other steel products.

There is a curious divergence in the advances in black sheets and tin plates respectively, the latter having advanced almost twice as much as the former. There is probably a difference in labor conditions in the districts that make the markets, as well as a difference in the class of raw steel used, while it is also true that the exports of tin plate have decreased much less than the exports of black and galvanized sheets. From December, 1913, to December, 1914, the decreases, in gross tons, have been as follows: Tin plates, 38,840 to 30,254 tons; galvanized sheets, 61,704 to 22,340 tons; black sheets, 5189 to 4614 tons.

It is interesting to compare the advanced British prices with those now ruling in the United States. If the English specification for hematite pig iron could be filled with standard American Bessemer iron, there would have been a heavy export movement ere this, for hematite iron, f.o.b. Tees, was last week (nominally) 95s. to 100s. ($23.09 to $24.30), which is not less than $9.50 above the market at our furnaces in the valleys near Pittsburgh, but the English specification requires something between our standard Bessemer and our standard low phosphorus, which is an entirely different thing.

Bars, plates and shapes average about 1.75 cents per pound, whereas our domestic market is 1.10 cents, Pittsburgh, a difference of $13 per net ton. Even allowing for differences in specifications and various elements not suggested by the bare quotations, there seems to be a clear possibility of our exporting such finished steel products to England; certainly no serious competition should be expected in neutral markets.

Even under the old tin-plate tariff of 1.2 cents per pound there were times when domestic tin plate delivered on the Pacific coast was not much under the cost of import, but with the great advance that has occurred in the Welsh market there is no comparison, even though the duty has been reduced to 15 per cent. ad valorem, a duty which, at some of the low prices formerly ruling, would amount to only 0.40 or 0.45 cent per pound. The latest quotation f.o.b. South Wales is 15s. ($3.65) for full weight, making the cost for 100-pound, plus duty but no freight, no less than $4.05, while our market is about $3.10, Pittsburgh, or about $3.50 delivered to Pacific coast via the Panama Canal. Our tin-plate exports in November, the latest month for which statistics are available, were 4937 gross tons, while the British exports in the same month were 30,942 tons. If present market conditions continue, an entirely different alignment will be developed in the figures.

## Screw-Thread Tolerances

What the screw-thread meeting held last week in New York may accomplish is as yet merely conjecture. What it aimed to do is praiseworthy and important. The user of bolts or screws is getting more critical. Even if his work does not demand an accurate mating of threads, he wants, other things being equal, to get a product which clearly spells care in manufacture, and he takes the trouble to learn if there is evidence of close working. The difficulty is there is no unanimity as to how closely the threads should be kept to the theoretically correct size or as to whether or not the divergence of, say, the commercial bolt from the true bolt may overlap the divergence of the commercial nut from the true nut. Still another question has to do with the possibility of requiring adherence to closer limits by the tap manufacturer than by the user of the tap. Then there is the feasibility of having more than one set of tolerances to meet various requirements.

The meeting was held under the direction of a committee of the American Society of Mechanical Engineers and is referred to elsewhere in this issue. It should not be allowed to pass without a word of general comment. It represents another example of the usefulness which the society is trying to develop for the good of its members and for the industries. It is far from the first time that under such auspices competing manufacturers have come together. The co-operative spirit is a recognition of the increasing influence which the

society has over industry and a mark of approval of an attitude which considers the commercial aspect of engineering problems. The society has learned quite a little how to maintain the enthusiasm of committees and how to bring opposing interests together, as evidence by the boiler code committee, which is still at work. The committees do not rest content with members of their own association but have gone beyond and enlisted the services of not merely a few outsiders but all likely to lend a hand.

Similar committee work has been conspicuous in the American Society for Testing Materials and the Society of Automobile Engineers. American industry will owe more to this kind of progress than is at present generally apprehended, and the engineering society, for one thing, has left the period when it devoted itself to the abstract and the laboratory and kept itself divorced from anything having too direct a path to the counting office.

## President Farrell Sees Better Times

President James A. Farrell, of the United States Steel Corporation, in an address at the dinner of the Engineers' Society of Western Pennsylvania at Pittsburgh, February 8, expressed himself most confidently regarding improvement in business. He said in part:

Up to within a few weeks ago it seemed as if the prospects of a material improvement in business were doubtful, but, apparently, the tide has turned and each day records a marked improvement in the general situation. It seems to me that the time has come when co-operation should manifest itself among business men, to bring about conditions which will result in a larger employment of labor. As business men, let us give our attention to solving industrial unrest by creating work, by toiling and spinning, and creating a normal circulation in the arteries of commerce.

The European war should teach the United States one lesson, namely, national unity. The moment a crisis arose, all internal differences were dropped in each country. The people rallied loyally in support of one common end. This country has reached a crucial stage in its history. It can attain the largest success only by government and people working with loyalty, zeal and courage in a constructive and national sense. Let ours be the courage, not of destruction but of construction.

The steel trade is improving, and the outlook is encouraging. The lumber industry is likewise. Large orders from belligerents and neutrals in Europe are keeping various lines of industry quite busy. Building has been quiet, but investors are coming to realize that money can be saved by starting operations now, material being available at unusually attractive prices. There is evidence of increasing merchandise traffic on the railroads, of opportunity to earn more money, to establish credit and make expenditure for materials and equipment, which means activity in manufacturing lines dependent upon railroads for orders.

The Interstate Commerce Commission's decision in the Eastern freight rate case has raised the drooping spirits of the railroads. There is less clamor for indiscriminate governmental suits against corporations, and we may reasonably hope that honestly conducted enterprises will hereafter be allowed to carry on their legitimate functions without fear of political or legal harassment.

The elements of prosperity are at hand; the developments from day to day are favorable; conditions which have favored buyers are turning in favor of sellers. There is a marked increase in steel orders and in operations; more men are obtaining employment and the trade movement is progressive and encouraging, and we should do everything practicable to sustain and advance it.

## Reduced Sheet and Tin Mill Wages

The conferences held in Pittsburgh between committees from the Amalgamated Association and sheet and tin-plate mills that sign the Amalgamated scale resulted in an agreement on Saturday, February 6, through which the sheet and tin mill workers will probably accept lower wages. The Amalgamated Association is taking a referendum vote of its members, who have been instructed to vote on the proposed reduction on the coming Saturday, and to have the result in the hands of the association officers not later than February 17. It is expected that the men will not defeat the proposed reductions, as it is believed they fully realize the great depression and very low prices existing in the sheet and tin-plate trades.

Under the proposed reduction it is agreed that when the actual average invoiced selling price of Nos. 26, 27 and 28 gauge plain Bessemer sheets, f.o.b. mill, Pittsburgh basis, is 2.25c. per lb., the tonnage rates shall be those in the present scale, with 1.6 per cent. additional for each 5c. per 100-lb. advance above the base named and 1.6 per cent. decline for each deduction of 5c. per 100 lb. to a 1.90c. selling price, which is the minimum of the new scale. In other words, the men have agreed to reduce the base in the present sheet-mill scale from 2.5c. per lb., which has been the base for many years, to 2.25c. per lb. The minimum was 2.50c. in the old scale, but in the proposed new lower scale the minimum is 1.90c. Under the present selling price of Bessemer black sheets the men will be paid for the present on the basis of 1.90c., which is the minimum scale base rate.

A committee of three of the sheet manufacturers, consisting of W. U. Follansbee, Follansbee Brothers Company, Pittsburgh; A. M. Flora, Trumbull Steel Company, Warren, Ohio, and James H. Nutt, secretary of the Western Bar Iron Association, is to confer bimonthly with a similar committee of the Amalgamated Association in order to determine the average selling price of sheets shipped out by the mills in the preceding two months. This average selling price will then determine the wage rate for sheet mills for the following two months. If it is determined that the average selling price of Bessemer black sheets of Nos. 26, 27 and 28 gauge in January and February did not exceed 1.90c., the wage rate for March and April will be based on the 1.90c. minimum price.

On the tin-plate scale it was agreed that when the actual average invoiced selling price of 100-lb. coke tin plates is $3.50 per base box, f.o.b. mill, Pittsburgh basis, the tonnage rates shall be those in the present scale with 1 per cent. additional for an increase of 5c. in the price per box above that selling price, and 1 per cent. decline for each deduction of 5c. per box to $3.20. The base in the present tin-mill scale is $3.90 per box, which has also been the minimum. Under the new lower wage scale the base has been reduced to $3.50 per base box and the minimum to $3.20. As practically all the tin plate for this year has been sold at $3.20 and considerably less, it is evident that the minimum wage rates provided in the new scale will apply up to July 1, at which time new scales will be arranged, the scale year ending June 30.

Much satisfaction is expressed by the independent makers of sheets and tin plate that a settlement of the wage rates in their mills has been secured on a lower basis, as it will permit the makers that sign the Amalgamated scale to compete with non-union mills, which have made reductions, either by increasing the tonnage hitherto turned out by the men or by reducing the wage rates.

The sheet and tin-plate mills represented in the new agreement with the Amalgamated Association are as follows: Whitaker-Glessner Company, Wheeling, W. Va., and Martins Ferry, Ohio; Youngstown Iron & Steel Company, Youngstown, Ohio; Carnahan Tin Plate & Sheet Company, Canton, Ohio; Newport Rolling Mill Company, Newport, Ky.; Brier Hill Steel Company, Youngstown, Ohio; Deforest Sheet & Tin Plate Company, Niles, Ohio; American Rolling Mill Company, Middletown, Ohio; Trumbull Steel Company, Warren, Ohio, and National Enameling & Stamping Company, Granite City, Ill., and St. Louis, Mo.

## Merchant Shipbuilding in 1914 and the Outlook

WASHINGTON, D. C., February 8, 1915.—Merchant ship construction during the calendar year 1914 aggregated 1163 vessels with a total of 255,630 gross tons, as compared with 1501 vessels with a total of 382,569 gross tons in the calendar year 1913, according to statistics which have just been compiled by the Commissioner of Navigation. This decrease of 338 vessels, of 127,029 gross tons, is attributed to the general depression prevailing throughout all industries during the year just ended and which was participated in by the ship yards of the country to more than the average extent because of the uncertain future of both foreign and coastwise trade due to the great European war.

The following table shows the distribution of the ship construction in the two calendar years 1913 and 1914 by materials and rig:

| | 1913 | | 1914 | |
|---|---|---|---|---|
| Wood | No. | Gross | No. | Gross |
| Sailing | 65 | 12,999 | 41 | 7,085 |
| Steam | 870 | 38,990 | 769 | 30,155 |
| Unrigged | 426 | 83,780 | 248 | 53,123 |
| Total | 1,361 | 135,769 | 1,058 | 90,363 |
| Metal | | | | |
| Sailing | 4 | 5,834 | 5 | 1,762 |
| Steam | 144 | 229,327 | 86 | 157,469 |
| Unrigged | 22 | 11,639 | 14 | 6,009 |
| Total | 140 | 246,800 | 105 | 165,267 |
| Totals | | | | |
| Sailing | 69 | 18,833 | 46 | 8,847 |
| Steam | 984 | 268,317 | 855 | 187,651 |
| Unrigged | 448 | 95,419 | 262 | 59,132 |
| Grand total | 1,501 | 382,569 | 1,163 | 255,630 |

Of the metal construction reported in 1914, 59 vessels, with an aggregate of 108,275 gross tons, were built on the Atlantic and Gulf coast; 16 vessels, aggregating 15,029 tons, on the Pacific coast; 33 vessels, aggregating 41,160 tons, on the Great Lakes, and 7 vessels, aggregating 803 tons, on the Western rivers. Of the steel vessels built during the year, all but 19 comparatively small boats were propelled by steam. Five were equipped with sails and 14 were unrigged barges.

### BRIGHT PROSPECTS FOR 1915

Reports reaching the Bureau of Navigation from the various shipyards during the past fortnight indicate that the calendar year 1915 will show a marked revival in construction. Orders placed since January 1 show that the industry has received a decided impetus as the result of war conditions and the officials of the bureau assert that the fact that British, German and French yards are now specializing almost exclusively on war work leaves American yards as the only important ones available for the construction of merchant ships. The cost of materials has risen rapidly in England, where some merchant construction is still going forward.

In addition to the construction in the calendar year 1914, the American merchant marine was recruited by the transfer to the American flag, under the act of August 18, 1914, of 106 foreign built vessels, owned by American citizens, aggregating 376,135 gross tons. Since January 1, 13 additional vessels, aggregating 73,999 tons, have been added, making a total increase in the merchant marine of 119 vessels of 440,134 tons which have been brought under the American flag by the new law. The bureau officials estimate that there are still available for transfer about 450,000 gross tons.

W. L. C.

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The Kerr Turbine Company, Wellsville, N. Y., has appointed W. E. Storey as its representative at Toronto, Canada, with offices in the Kent Building. He was formerly identified with the Underfeed Stoker Company, and more recently with the Goulds Mfg. Company.

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The Electric Controller & Mfg. Company, Cleveland, Ohio, announces that the O. H. Davidson Equipment Company, Ideal Building, Denver, Colo., will act as its representative in Colorado, Utah, Montana, Wyoming, South Dakota, New Mexico and Arizona.

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## Number of Unemployed in New York City

The Metropolitan Life Insurance Company reported last Friday to the New York Mayor's Committee on Unemployment the results of the canvass of its industrial policy holders that it has been making for the last two weeks. It showed the percentage of unemployment to be 17.7. The committee has estimated the number who would be at work under normal conditions at 2,017,000, so that if the ratio holds good throughout the number now out of work in the city is about 357,000.

The Metropolitan has 1,500,000 industrial policy holders in New York City, and it takes about a month for its agents to make the complete round. Most of the premiums are paid weekly, but some are due at longer intervals. The plan of operation was for the company's agents when collecting premiums, to ask questions as to unemployment and to enter the answers on blanks provided for the purpose. The estimate of 357,000 based on this report is considerably higher than any figure that has had official sanction. The committee itself has estimated that the number out of work this winter is nearly 200,000 greater than last winter. This would mean a total of about 300,000.

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Corrigan, McKinney & Co., Cleveland, Ohio, have retired from the vessel business, having sold four lake boats to the Pioneer Steamship Company, Cleveland. These vessels have been used in bringing down Corrigan, McKinney & Co.'s ore from Lake Superior ports.

# The Iron and Metal Markets

## UNFILLED ORDERS LARGER

### Steel Mills Working Up to 60 Per Cent.

#### Prices of Wire Products to Be Advanced

Improvement in the steel trade is so gradual that it is well to look back to the conditions prevailing last November and December to appreciate the present situation. Mill operations were then at only about 35 per cent. of capacity, while this week they are up to nearly 60 per cent. The United States Steel Corporation reports an increase of 411,928 tons in unfilled orders in January, this being the second month to show an increase since the turn for the better. The January increase is far greater than had been estimated. The improvement in the corporation's business is further shown by the fact that although it has blown in 11 blast furnaces since December, it is found necessary to start another Duquesne, another Edgar Thomson and another South Chicago, which will make 14 idle furnaces recently placed on its active list. Its great Gary works was put in operation on Monday after a long idleness, and its Edgar Thomson rail mills have been placed on a sharper gait than for some time. It is further announced that in view of the better state of business the corporation will proceed to complete improvement work held up for months. Its export trade is now running a little larger than normal.

Business originating with the railroads is still somewhat backward. The rail orders of the week include 6000 tons from the Chicago Great Western, 6000 tons from the Bessemer & Lake Erie and small lots from the St. Paul. The Burlington is in the market for about 20,000 tons in addition to its former purchase. Inquiries for about 4300 cars are out, this being an improvement over conditions two weeks ago. An order for 5300 tons of girder rails for a street railroad has been placed with a subsidiary of the Steel Corporation.

Shipbuilding business continues to loom up large in the horizon of plate manufacturers. Contracts for three more large ocean-going vessels were placed the past week, and orders still to be given out are reported to aggregate almost as large a number as those contracted for in the past three months. A long idle shipyard at New London, Conn., is to be rehabilitated to take advantage of the active demand for ships. Bids will be opened February 16 for nearly 15,000 tons of plates and 3000 tons of shapes and bars for the new battleship California to be built at the Brooklyn navy yard. The plate trade is in need of all the business of this kind that can be had, as prices on plates have been somewhat more inclined to weakness than those on other products.

The demand for sheets is showing some betterment, orders having been stimulated to an extent by the apprehension of a disagreement over wages in sheet and tin-plate plants. This matter, however, has been amicably settled, the workmen in mills outside of those owned by the Steel Corporation having agreed through their representatives to accept a reduction. This removes a disturbing feature from the trade.

Contracts for structural material placed in New York and vicinity in the past few days totaled about 20,000 tons, included in which is about 13,000 tons for the third tracking of Brooklyn elevated railroads. Among structural contracts placed elsewhere were about 3500 tons at Cleveland, 1700 tons at Columbus, Ohio, and 1600 tons taken by a Western fabricator for work in the South. Some large structural business recently mentioned is still pending, among this being 20,000 tons for track elevation at Indianapolis and 9500 tons for a bridge in Oregon. The Pennsylvania Railroad is stated to have withdrawn its recent inquiry for 19,000 tons of bridge work for this year's delivery on the ground that prices quoted are too high.

An indication of a rising tide in business in wire is the advance just announced, effective February 10, by the leading wire interest of $1 per ton on all wire products. This action will probably be followed by other manufacturers. The volume of business in the West has improved considerably of late.

While the domestic demand for pig iron is showing no substantial increase, much interest is taken in the persistent stream of foreign inquiries.

### A Comparison of Prices

**Advances Over the Previous Week in Heavy Type. Declines in Italics**

At date, one week, one month, and one year previous

| | Feb. 10, 1915. | Feb. 3, 1915. | Jan. 13, 1915. | Feb. 11, 1914. |
|---|---|---|---|---|
| **Pig Iron,** Per Gross Ton: | | | | |
| No. 2 X, Philadelphia.... | $14.25 | $14.25 | $14.50 | $15.00 |
| No. 2, Valley furnace.... | 13.00 | 13.00 | 13.00 | 13.25 |
| No. 2 Southern, Cin'ti... | 12.40 | 12.40 | 12.40 | 13.75 |
| No. 2, Birmingham, Ala.. | 9.50 | 9.50 | 9.50 | 10.50 |
| No. 2, furnace, Chicago*. | 13.00 | 13.00 | 13.00 | 13.75 |
| Basic, del'd, eastern Pa.. | 13.50 | 13.50 | 13.50 | 14.00 |
| Basic, Valley furnace.... | 12.50 | 12.50 | 12.50 | 13.25 |
| Bessemer, Pittsburgh.... | 14.55 | 14.55 | 14.55 | 15.15 |
| Malleable Bess., Ch'go*.. | 13.00 | 13.00 | 13.00 | 13.75 |
| Gray forge, Pittsburgh... | 13.45 | 13.45 | 13.45 | 13.65 |
| L. S. charcoal, Chicago.. | 15.75 | 15.75 | 15.75 | 15.25 |
| **Billets, etc.,** Per Gross Ton: | | | | |
| Bess. billets, Pittsburgh.. | 19.50 | 19.50 | 19.00 | 21.00 |
| O.-h. billets, Pittsburgh.. | 19.50 | 19.50 | 19.00 | 21.00 |
| O.-h. sheet bars, P'gh.... | 20.50 | 20.50 | 20.00 | 22.00 |
| Forging billets, base, P'gh | 24.00 | 24.00 | 24.00 | 25.00 |
| O.-h. billets, Phila..... | 21.40 | 21.40 | 21.40 | 22.40 |
| Wire rods, Pittsburgh... | 25.00 | 25.00 | 25.00 | 26.50 |
| **Old Material,** Per Gross Ton: | | | | |
| Iron rails, Chicago..... | 11.50 | 11.50 | 11.25 | 13.00 |
| Iron rails, Philadelphia.. | 13.00 | 13.00 | 13.00 | 16.50 |
| Carwheels, Chicago ..... | 10.00 | 10.00 | 10.00 | 12.75 |
| Carwheels, Philadelphia.. | 10.50 | 10.50 | 11.00 | 12.50 |
| Heavy steel scrap, P'gh.. | 11.50 | 11.50 | 11.75 | 12.75 |
| Heavy steel scrap, Phila. | 10.00 | 10.00 | 10.00 | 11.00 |
| Heavy steel scrap, Ch'go. | **9.50** | 9.25 | 9.00 | 11.00 |
| No. 1 cast, Pittsburgh... | 11.25 | 11.25 | 11.25 | 12.00 |
| No. 1 cast, Philadelphia. | 12.00 | 12.00 | 12.00 | 13.00 |
| No. 1 cast, Ch'go (net ton). | 9.00 | 9.00 | 9.25 | 11.25 |
| **Finished Iron and Steel,** Per Lb. to Large Buyers: | Cents. | Cents. | Cents. | Cents. |
| Bess. rails, heavy, at mill | 1.25 | 1.25 | 1.25 | 1.25 |
| Iron bars, Philadelphia.. | 1.20 | 1.20 | 1.17½ | 1.25 |
| Iron bars, Pittsburgh.... | 1.10 | 1.10 | 1.15 | 1.40 |
| Iron bars, Chicago..... | **1.02½** | 1.00 | 0.97½ | 1.12½ |
| Steel bars, Pittsburgh.... | 1.10 | 1.10 | 1.10 | 1.20 |
| Steel bars, New York.... | 1.26 | 1.26 | 1.26 | 1.36 |
| Tank plates, Pittsburgh.. | 1.10 | 1.10 | 1.10 | 1.20 |
| Tank plates, New York.. | 1.26 | 1.26 | 1.26 | 1.36 |
| Beams, etc., Pittsburgh.. | 1.10 | 1.10 | 1.10 | 1.20 |
| Beams, etc., New York... | 1.26 | 1.26 | 1.26 | 1.36 |
| Skelp, grooved steel, P'gh | 1.10 | 1.10 | 1.10 | 1.25 |
| Skelp, sheared steel, P'gh | 1.15 | 1.15 | 1.15 | 1.35 |
| Steel hoops, Pittsburgh.. | 1.20 | 1.20 | 1.20 | 1.30 |
| **Sheets, Nails and Wire,** Per Lb. to Large Buyers: | Cents. | Cents. | Cents. | Cents. |
| Sheets, black, No. 28, P'gh. | 1.80 | 1.80 | 1.80 | 1.95 |
| Galv. sheets, No. 28, P'gh. | 3.00 | 3.00 | 2.75 | 2.95 |
| Wire nails, Pittsburgh... | 1.55 | 1.55 | 1.55 | 1.60 |
| Cut nails, Pittsburgh.... | 1.50 | 1.50 | 1.50 | 1.60 |
| Fence wire, base, P'gh... | 1.35 | 1.35 | 1.35 | 1.40 |
| Barb wire, galv., P'gh... | 1.95 | 1.95 | 1.95 | 2.00 |

*The average switching charge for delivery to foundries in the Chicago district is 50c. per ton.

| Coke, Connellsville, Per Net Ton at Oven: | Feb. 10, 1915. | Feb. 3, 1915. | Jan. 13, 1915. | Feb. 11, 1914. |
|---|---|---|---|---|
| Furnace coke, prompt | $1.50 | $1.50 | $1.50 | $1.85 |
| Furnace coke, future | 1.65 | 1.65 | 1.75 | 2.00 |
| Foundry coke, prompt | 2.00 | 2.00 | 2.00 | 2.50 |
| Foundry coke, future | 2.15 | 2.15 | 2.15 | 2.75 |

| Metals, Per Lb. to Large Buyers: | Cents. | Cents. | Cents. | Cents. |
|---|---|---|---|---|
| Lake copper, New York | 15.25 | 15.00 | 13.75 | 15.00 |
| Electrolytic copper, N. Y. | 14.75 | 14.75 | 13.62½ | 14.70 |
| Spelter, St. Louis | 8.00 | 7.85 | 5.90 | 5.30 |
| Spelter, New York | 8.25 | 8.00 | 6.05 | 5.45 |
| Lead, St. Louis | 3.67½ | 3.62½ | 3.50 | 4.05 |
| Lead, New York | 3.80 | 3.80 | 3.70 | 4.15 |
| Tin, New York | 36.00 | 37.80 | 33.35 | 41.00 |
| Antimony, Hallett's, N. Y. | 18.50 | 17.00 | 15.00 | 7.00 |
| Tin plate, 100-lb. box, P'gh. | $3.10 | $3.10 | $3.10 | $3.30 |

## Finished Iron and Steel f. o. b. Pittsburgh

Freight rates from Pittsburgh in carloads, per 100 lb.: New York, 16c.; Philadelphia, 15c.; Boston, 18c.; Buffalo, 11.6c.; Cleveland, 10.5c.; Cincinnati, 15.8c.; Indianapolis, 17.9c.; Chicago, 18.9c.; St. Louis, 23.6c.; Kansas City, 43.6c.; Omaha, 43.6c.; St. Paul, 32.9c.; Denver, 68.6c.; New Orleans, 30c.; Birmingham, Ala., 45c.; Pacific coast, 80c. on plates, structural shapes and sheets No. 11 and heavier; 85c. on sheets Nos. 12 to 16; 95c. on sheets No. 16 and lighter; 65c. on wrought pipe and boiler tubes. The foregoing rates to the Pacific coast are by rail. The rate via New York and the Panama Canal on plates, shapes, etc., is 46c.

**Plates.**—Tank plates, ¼ in. thick, 6¼ in. up to 100 in. wide, 1.10c., base, net cash, 30 days. Following are stipulations prescribed by manufacturers, with extras:

Rectangular plates, tank steel or conforming to manufacturers' standard specifications for structural steel dated February 6, 1903, or equivalent, ¼ in. and over on thinnest edge, 100 in. wide and under, down to but not including 6 in. wide, are base.

Plates up to 72 in. wide, inclusive, ordered 10.2 lb. per sq. ft., are considered ¼-in. plates. Plates over 72 in. wide must be ordered ¼ in. thick on edge, or not less than 11 lb. per sq. ft., to take base price. Plates over 72 in. wide ordered less than 11 lb. per sq. ft. down to the weight of 3-16 in. take the price of 3-16 in.

Allowable overweight, whether plates are ordered to gauge or weight, to be governed by the standard specifications of the Association of American Steel Manufacturers.

| Extras | Cents per lb. |
|---|---|
| Gauges under ¼ in. to and including 3-16 in. | .10 |
| Gauges under 3-16 in. to and including No. 8 | .15 |
| Gauges under No. 8 to and including No. 9 | .25 |
| Gauges under No. 9 to and including No. 10 | .30 |
| Gauges under No. 10 to and including No. 12 | .40 |
| Sketches (including straight taper plates), 3 ft. and over | .10 |
| Complete circles 3 ft. in diameter and over | .20 |
| Boiler and flange steel | .10 |
| "A. B. M. A." and ordinary firebox steel | .20 |
| Still bottom steel | .30 |
| Marine steel | .40 |
| Locomotive firebox steel | .50 |
| Widths over 100 in. up to 110 in., inclusive | .05 |
| Widths over 110 in. up to 115 in., inclusive | .10 |
| Widths over 115 in. up to 120 in., inclusive | .15 |
| Widths over 120 in. up to 125 in., inclusive | .25 |
| Widths over 125 in. up to 130 in., inclusive | .50 |
| Widths over 130 in. | 1.00 |
| Cutting to lengths, under 3 ft. to 2 ft. inclusive | .25 |
| Cutting to lengths, under 2 ft. to 1 ft. inclusive | .50 |
| Cutting to lengths, under 1 ft. | 1.55 |

No charge for cutting rectangular plates to lengths 3 ft. and over.

**Structural Material.**—I-beams, 3 to 15 in.; channels, 3 to 15 in.; angles, 3 to 6 in. on one or both legs, ¼ in. thick and over, and zees, 3 in. and over, 1.10c. Extras on other shapes and sizes are as follows:

| | Cents per lb. |
|---|---|
| I-beams over 15 in. | .10 |
| H-beams over 18 in. | .10 |
| Angles over 6 in., on one or both legs | .10 |
| Angles, 3 in. on one or both legs, less than ¼ in. thick, as per steel bar card, Sept. 1, 1909 | .70 |
| Tees, structural sizes (except elevator, handrail, car truck and conductor rail) | .05 |
| Channels and tees, under 3 in. wide, as per steel bar card, Sept. 1, 1909 | .20 to .80 |
| Deck beams and bulb angles | .30 |
| Handrail tees | .75 |
| Cutting to lengths, under 3 ft. to 2 ft. inclusive | .25 |
| Cutting to lengths, under 2 ft. to 1 ft. inclusive | .50 |
| Cutting to lengths, under 1 ft. | 1.55 |

No charge for cutting to lengths 3 ft. and over.

**Wire Products.**—Fence wire, Nos. 0 to 9, per 100 lb., terms 60 days or 2 per cent. discount in 10 days, carload lots to jobbers, annealed, $1.35; galvanized, $1.75. Galvanized barb wire and fence staples to jobbers, $1.95; painted, $1.55. Wire nails to jobbers, $1.55. Woven wire fencing, 73 per cent. off list for carloads; 72 off for 1000-rod lots; 71 off for less than 1000-rod lots.

The following table gives the price to retail merchants on fence wire in less than carloads, with the extras added to the base price:

*Plain Wire, per 100 lb.*

| Nos. | 0 to 9 | 10 | 11 | 12&12½ | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|
| Annealed | $1.50 | $1.55 | $1.60 | $1.65 | $1.75 | $1.85 | $1.95 | $2.05 |
| Galvanized | 1.90 | 1.95 | 2.00 | 2.05 | 2.15 | 2.25 | 2.65 | 2.75 |

**Wire Rods.**—Bessemer, open-hearth and chain rods, $25.

**Wrought Pipe.**—The following are the jobbers' carload discounts on the Pittsburgh basing card on steel pipe in effect from November 2, 1914, and iron pipe from June 2, 1913, all full weight.

*Butt Weld*

| Steel: Inches | Black | Galv. | Iron: Inches | Black | Galv. |
|---|---|---|---|---|---|
| ⅛, ¼ and ⅜ | 74 | 53½ | ⅛ and ¼ | 66 | 47 |
| ½ | 78 | 67½ | ⅜ | 65 | 46 |
| ¾ to 3 | 81 | 72½ | ½ | 69 | 56 |
| | | | ¾ to 2½ | 72 | 61 |

*Lap Weld*

| | | | | | |
|---|---|---|---|---|---|
| 2 | 78 | 69½ | 1¼ | 56 | 45 |
| 2½ to 6 | 80 | 71½ | 1½ | 67 | 56 |
| 7 to 12 | 77 | 66½ | 2 | 68 | 58 |
| 13 and 14 | 63½ | .. | 2½ to 4 | 70 | 61 |
| 15 | 61 | .. | 4½ to 6 | 70 | 61 |
| | | | 7 to 12 | 68 | 55 |

*Reamed and Drifted*

| | | | | | |
|---|---|---|---|---|---|
| 1 to 3, butt | 79 | 70½ | 1 to 1½, butt | 70 | 59 |
| 2, lap | 76 | 67½ | 2, butt | 70 | 59 |
| 2½ to 6, lap | 78 | 69½ | 1¼, lap | 54 | 43 |
| | | | 1½, lap | 65 | 54 |
| | | | 2, lap | 66 | 56 |
| | | | 2½ to 4, lap | 68 | 59 |

*Butt Weld, extra strong, plain ends*

| | | | | | |
|---|---|---|---|---|---|
| ⅛, ¼ and ⅜ | 69 | 58½ | ⅜ | 63 | 52 |
| ½ | 74 | 67½ | ½ | 67 | 60 |
| ¾ to 1½ | 78 | 71½ | ¾ to 1½ | 71 | 62 |
| 2 to 3 | 79 | 72½ | 2 and 2½ | 72 | 63 |

*Lap Weld, extra strong, plain ends*

| | | | | | |
|---|---|---|---|---|---|
| 2 | 75 | 66½ | 1½ | 65 | 59 |
| 2½ to 4 | 77 | 68½ | 2 | 66 | 58 |
| 4½ to 6 | 76 | 67½ | 2½ to 4 | 70 | 61 |
| 7 to 8 | 69 | 58½ | 4½ to 6 | 69 | 60 |
| 9 to 12 | 64 | 53½ | 7 to 8 | 63 | 53 |
| | | | 9 to 12 | 58 | 47 |

*Butt Weld, double extra strong, plain ends*

| | | | | | |
|---|---|---|---|---|---|
| ½ | 64 | 57½ | ½ | 57 | 49 |
| ¾ to 1½ | 67 | 60½ | ¾ to 1½ | 60 | 52 |
| 2 to 2½ | 69 | 62½ | 2 and 2½ | 62 | 54 |

*Lap Weld, double extra strong, plain ends*

| | | | | | |
|---|---|---|---|---|---|
| 2 | 65 | 58½ | 2 | 55 | 49 |
| 2½ to 4 | 67 | 60½ | 2½ to 4 | 60 | 54 |
| 4½ to 6 | 66 | 59½ | 4½ to 6 | 59 | 53 |
| 7 to 8 | 59 | 48½ | 7 to 8 | 52 | 42 |

To the large jobbing trade an additional 5 per cent. is allowed over the above discounts.

The above discounts are subject to the usual variation in weight of 5 per cent. Prices for less than carloads are two (2) points lower basing (higher price) than the above discounts on black and three (3) points on galvanized.

**Boiler Tubes.**—Discounts to jobbers, in carloads, in effect from May 1, 1914, on steel and from January 2, 1914, on iron, are as follows:

| *Lap Welded Steel* | | *Standard Charcoal Iron* | |
|---|---|---|---|
| 1¾ and 2 in. | 62 | 1½ in. | 45 |
| 2¼ in. | 59 | 1⅝ and 2 in. | 49 |
| 2½ and 2¾ in. | 65 | 2¼ in. | 45 |
| 3 and 3¼ in. | 70 | 2½ and 2¾ in. | 54 |
| 3½ and 4½ in. | 72 | 3 and 3¼ in. | 57 |
| 5 and 6 in. | 65 | 3½ and 4½ in. | 60 |
| 7 to 13 in. | 62 | 5 and 6 in. | 49 |

Locomotive and steamship special charcoal grades bring higher prices.

2½ in. and smaller, over 18 ft., 10 per cent. net extra.

2¾ in. and larger, over 22 ft., 10 per cent. net extra.

Less than carloads will be sold at the delivered discounts for carloads, lowered by two points for lengths 22 ft. and under to destinations east of the Mississippi River; lengths over 22 ft., and all shipments going west of the Mississippi River must be sold f.o.b. mill at Pittsburgh basing discount, lowered by two points. On standard charcoal iron tubes for desirable orders the above discounts are shaded an extra 5, and occasionally two 5's by some makers.

**Sheets.**—Makers' prices for mill shipment on sheets of U. S. Standard gauge, in carload and larger lots, on which jobbers charge the usual advance for small lots from store, are as follows, f.o.b. Pittsburgh, terms 30 days net, or 2 per cent. cash discount in 10 days from date of invoice:

*Blue Annealed Sheets*

| | Cents per lb. |
|---|---|
| Nos. 3 to 8 | 1.25 to 1.30 |
| Nos. 9 to 10 | 1.30 to 1.35 |
| Nos. 11 and 12 | 1.35 to 1.40 |
| Nos. 13 and 14 | 1.45 to 1.50 |
| Nos. 15 and 16 | 1.55 to 1.60 |

*Box Annealed Sheets, Cold Rolled*

| | Cents per lb. |
|---|---|
| Nos. 10 and 11 | 1.45 to 1.50 |
| No. 12 | 1.45 to 1.50 |
| Nos. 13 and 14 | 1.50 to 1.55 |
| Nos. 15 and 16 | 1.55 to 1.60 |
| Nos. 17 to 21 | 1.60 to 1.65 |
| Nos. 22 and 24 | 1.65 to 1.70 |
| Nos. 25 and 26 | 1.70 to 1.75 |
| No. 27 | 1.75 to 1.80 |
| No. 28 | 1.80 to 1.85 |
| No. 29 | 1.85 to 1.90 |
| No. 30 | 1.95 to 2.00 |

*Galvanized Sheets of Black Sheet Gauge*

| | Cents per lb. |
|---|---|
| Nos. 10 and 11 | 2.00 |
| No. 12 | 2.10 |
| Nos. 13 and 14 | 2.10 |
| Nos. 15 and 16 | 2.20 |
| Nos. 17 to 21 | 2.40 |
| Nos. 22 and 24 | 2.50 |
| Nos. 25 and 26 | 2.70 |
| No. 27 | 2.85 |
| No. 28 | 3.00 |
| No. 29 | 3.15 |
| No. 30 | 3.30 |

## Pittsburgh

PITTSBURGH, PA., February 9, 1915.

Mills report that the 1.10c. price on plates, shapes and bars for February shipment only, 1.15c. for March and 1.20c. for second quarter are being favorably received by the trade. Orders are being placed for this month's delivery at the 1.10c. price, and a few contracts for the later periods at prices named, but whether they will develop into actual specifications will depend largely on conditions when the periods arrive named in the contracts. There is disappointment in the trade over the small amount of business placed so far by the railroads, as they had intimated strongly that they would be heavy buyers of rails and other track materials if they were granted the advance in freight rates which they have received. Operations among the mills are better, the Steel Corporation operating close to 60 per cent. of ingot capacity and other large steel concerns running 50 to 60 per cent. Prices are showing a firmer tone, especially tin plate and galvanized products, the latter due to the heavy advance in prices of spelter. The settlement of the tin-plate and sheet scales, by which the manufacturers are to secure reductions in existing scale rates, means that some sheet and tin-plate mills will be active that probably would have been idle had the reduction not been granted. Pig iron, coke and scrap are dull and prices are weak.

**Pig Iron.**—Prices on Bessemer have again weakened, carload lots having sold at $13.60, Valley furnace, and there is little doubt but that large lots could be bought at $13.50 or less. Basic iron is quiet. Small lots of foundry for prompt shipment are being sold at $13 to $13.25, Valley furnace, while one or two furnaces that have a 75c. freight to Pittsburgh are quoting $12.75 and $12.85 at furnace. We quote Bessemer iron at $13.60; basic, $12.50; malleable Bessemer, $12.75; No. 2 foundry, $13 to $13.25, and gray forge, $12.50, all at Valley furnace, with a freight rate of 95c. a ton for delivery in the Cleveland and Pittsburgh districts.

**Billets and Sheet Bars.**—Little is being done in billets or sheet bars, consumers being covered through first quarter and some, that have sliding scale contracts, over the entire year. The Carnegie Steel Company has sold a very large amount of sheet bars to sheet and tin-plate mills for delivery over first half and over all of this year, prices on which are fixed monthly. Consumers in the Youngstown district are also well covered. We quote Bessemer and open-hearth billets at $18 to $18.50, and Bessemer and open-hearth sheet bars $19, f.o.b. maker's mill, Youngstown; Bessemer and open-hearth billets, $19.50 to $20, and Bessemer and open-hearth sheet bars, $20.50 to $21, f.o.b. maker's mill, Pittsburgh. Forging billets are quoted at $24 for sizes up to but not including 10 x 10 in., and for carbons up to 0.25, the regular extras being charged for larger sizes and higher carbons. Forging billets running above 0.25 to 0.60 carbon take $1 per ton extra. Axle billets are quoted at $21 to $22.

**Ferroalloys.**—Reports are that small lots of ferromanganese for prompt delivery from stock have sold as high as $90, seaboard, and the material is hard to obtain even at this price. It is believed, however, that England will soon remove the embargo, and, if this is done, the situation will ease up quickly. We quote 50 per cent. ferrosilicon, in lots up to 100 tons, at $73; over 100 tons to 600 tons, $72; over 600 tons, $71, delivered in the Pittsburgh district. On 10 per cent. ferrosilicon the quotation is $19; 11 per cent., $20, and 12 per cent., $21, f.o.b. cars Jackson County, Ohio, or Ashland, Ky., furnace. We quote 20 per cent. spiegeleisen at $25 at furnace. We quote ferrotitanium at 8c. per lb. in carloads; 10c. in 2000-lb. lots and over, and 12½c. in less than 2000-lb. lots.

**Steel Rails.**—Of the recent 25,000-ton order of the Baltimore & Ohio, the Cambria Steel Company took 9000 tons and the Maryland Steel Company 4000 tons. The new demand for light rails is active, the Carnegie Steel Company having taken in the past week new orders and specifications for over 3000 tons. The schedule of the company's Edgar Thomson mills on standard sections and light rails is in better shape now than for some years. A new blooming mill has been finished at this plant and work on the heavy rail mill will start in a short time. We quote standard section rails made of Bessemer stock at 1.25c., and of open-hearth, 1.34c., f.o.b. Pittsburgh. We quote light rails as follows, in carload lots: 8 and 10 lb. sections, 1.275c.; 12 and 14 lb., 1.225c.; 16 and 20 lb., 1.175c.; 25, 30, 35, 40 and 45 lb. sections, 1.125c.

**Structural Material.**—New inquiry in the past week was only fair. The Riter-Conley Mfg. Company has taken 450 tons for a Jewish hospital in Cleveland, and the McClintic-Marshall Company 225 tons for an addition to a hospital in Philadelphia. The Pennsylvania Railroad has withdrawn its recent inquiry for 19,000 tons of structural steel for this year's delivery, stating that the prices quoted were too high, but it has asked bids on 400 tons for a bridge across the Susquehanna River at Harrisburg. The Chesapeake & Ohio Northern is in the market for 3600 tons for bridge work to be erected in Ohio. We quote beams and channels up to 15-in. at 1.10c. for February shipment, 1.15c. for March, and 1.20c. for second quarter.

**Plates.**—No new car orders have been placed, and inquiries recently mentioned are still out. The Government will open bids February 16, for 14,700 tons of plates and 3000 tons of shapes and steel bars for the new battleship California to be built at the Brooklyn navy yard. The current demand for plates is dull, but the mills are running to larger capacity now than for some time. We quote ¼-in. and heavier plates at 1.10c., f.o.b. Pittsburgh, for February shipment, 1.15c. for March, and 1.20c. for second quarter.

**Tin Plate.**—Specifications against contracts are coming in at a fair rate, and the mills are mostly operating to nearly full capacity, the American Sheet & Tin Plate Company running this week to 92 per cent. There is some demand from jobbers, but large consumers are covered. Prices are firm, due to the advance in pig tin. On current inquiries, from $3.10 to $3.20 for 14 x 20 coke plates is being quoted. On a very desirable contract the lower price might be shaded.

**Sheets.**—Partly due to the heavy advance in galvanized sheets, black sheets are firmer and some mills are quoting 1.85c. minimum and even up to 1.90c. on No. 28. The new demand is fairly active. None of the mills will sell galvanized sheets for delivery beyond March at 3c. One mill under pressure quoted 3.10c., for second quarter. Prices on blue annealed sheets are firm, and 1.30c. on very desirable business is minimum. Sheet mills, as a rule, are operating from 50 to 60 per cent. of capacity. We quote No. 28 Bessemer black sheets at 1.80c. to 1.85c., No. 28 galvanized at 3c., Nos. 9 and 10 blue annealed sheets, 1.30c. to 1.35c., with some sellers holding for the higher price; No. 30 black plate, tin-mill sizes, H. R. & A., 1.95c.; No. 28, 1.90c.; Nos. 27, 26 and 25, 1.85c.; Nos. 22 to 24, 1.80c.; Nos. 17 to 21, 1.75c.; Nos. 15 and 16, 1.70c. The above prices are for carload lots, f.o.b. at maker's mill, jobbers charging the usual advances for small lots from store.

**Wire Rods.**—Consumers are covered up to July, and not much new business is being placed. We note a sale

of 1500 to 2000 tons of open-hearth wire rods for delivery up to July at $25, maker's mill. One leading maker is not actively seeking new business, having commitments for about all the rods it can turn out in two or three months. Foreign inquiry is quiet. Prices are firmer and we quote: Bessemer, open-hearth and chain rods at $25 to $25.50, f.o.b. Pittsburgh.

**Shafting.**—Specifications against contracts from the automobile and implement trades are coming in freely and new demand is fairly active. The market on shafting is firmer, and if the higher prices quoted on steel bars by the mills for March, and also for second quarter delivery, are obtained, an advance in prices of shafting seems probable. However, consumers are pretty well covered up to July. We quote cold-rolled shafting at 67 to 68 per cent. off, delivered in base territory.

**Railroad Spikes.**—Makers report that railroads are now sending in specifications against contracts for spikes, shipments to commence in March and April. Some of the Western roads have not yet covered their requirements of spikes for 1915, but this business goes to the Chicago district. We quote railroad spikes at $1.35 to $1.40, and small spikes at $1.45 to $1.50, in carload and larger lots, f.o.b. Pittsburgh, for first half.

**Skelp.**—Prices are firm and mills report that new demand is better. It is stated a large contract for grooved steel skelp has been closed for shipment to England, the amount being estimated at 5000 to 10,000 tons. We quote: Grooved steel skelp, 1.10c. to 1.15c.; sheared steel skelp, 1.15c. to 1.20c.; grooved iron skelp, 1.50c.; sheared iron skelp, 1.50c. to 1.60c., delivered to consumers' mills in the Pittsburgh district.

**Hoops and Bands.**—New buying is quiet, as consumers are covered to April and in some cases to July, and mills report specifications coming in at a fair rate. We quote steel bands at 1.10c., with extras as per the steel bar card, and steel hoops at 1.20c. to 1.25c., Pittsburgh, for first quarter delivery.

**Wire Products.**—Prices on galvanized wire products are very firm, and all the makers are instructing their sales agents to go very cautiously in accepting new business. If present prices in spelter hold, an advance in galvanized wire products in the near future is likely. Not much foreign business is being placed, but inquiries are plentiful. A few contracts for wire nails at $1.55 and plain wire at $1.35 are now being made, but the bulk of the trade covered at lower prices prior to the advance. Mills report specifications active and shipments are heavier than for some time. On new orders we quote wire nails, $1.55; plain annealed wire, $1.35; galvanized barb wire and fence staples, $1.95; painted barb wire, $1.55, all f.o.b. Pittsburgh, freight added to point of delivery, terms 30 days net, less 2 per cent. for cash in 10 days. Prices on woven wire fencing are 73 per cent. off in carload lots, 72 per cent. on 1000-rod lots and 71 per cent. on small lots, f.o.b. Pittsburgh.

**Iron and Steel Bars.**—It is stated that a few contracts for steel bars have been made on the basis of 1.15c. for March and 1.20c. for second quarter, but whether this will develop into actual business depends largely on conditions when these periods are reached. Most consumers are covered for this quarter at 1.05c. and 1.10c. and are not taking hold at the higher prices very actively. Shipments of steel bars to the implement trade and to shafting makers are heavy, and the new demand for reinforcing steel bars is active. The demand for common iron bars is light and prices show no betterment. We quote steel bars for February shipment at 1.10c.; March, 1.15c., and for second quarter, 1.20c., f.o.b. Pittsburgh. Common iron bars, made from part scrap, are 1.10c. to 1.15c., makers' mill.

**Merchant Steel.**—Makers report new demand more active, but it is still confined mostly to small lots to cover urgent needs. Shipments by the mills now are heavier than for some time. Prices on small lots for prompt shipment are as follows: Iron finished tire, ½ x 1½ in., and larger, 1.30c., base; under ½ x 1½ in., 1.45c.; planished tire, 1.50c.; channel tire, ⅝ to ⅞ and 1 in., 1.80c. to 1.90c.; 1⅛ in. and larger, 1.90c.; toe calk, 1.90c. to 2c., base; flat sleigh shoe, 1.65c.; concave and convex, 1.70c.; cutter shoe, tapered or bent, 2.20c. to 2.30c.; spring steel, 1.90c. to 2c.; machinery steel, smooth finish, 1.70c.

**Cold-Rolled Strip Steel.**—The new demand is better and mills report specifications coming in more actively than for some time. Prices are also firmer, due to the hardening of the market on raw material. We quote hard-rolled steel, 1½-in. and wider, under 0.20 carbon, sheared or natural mill edges, per 100 lb., $2.75 delivered. Extras, which are standard among all the mills, are as follows:

| Thickness, in. | Extras for thickness | Extras for soft or intermediate tempers | Extras for straightening and cutting to lengths not less than 24 in. |
|---|---|---|---|
| 0.100 and heavier | Base | $0.25 | $0.10 |
| 0.099 to 0.050 | $0.05 | 0.25 | 0.15 |
| 0.049 to 0.035 | 0.20 | 0.25 | 0.15 |
| 0.034 to 0.031 | 0.35 | 0.40 | 0.25 |
| 0.030 to 0.025 | 0.45 | 0.40 | 0.40 |
| 0.024 to 0.020 | 0.55 | 0.40 | 0.50 |
| 0.019 to 0.017 | 0.85 | 0.50 | 1.10 |
| 0.016 to 0.015 | 1.25 | 0.50 | 1.10 |
| 0.014 to 0.013 | 1.95 | 0.50 | 1.25 |
| 0.012 | 2.30 | 0.50 | coils only |
| 0.011 | 2.65 | 0.50 | coils only |
| 0.010 | 3.00 | 0.50 | coils only |

**Wrought Pipe.**—Mills report that current demand for wrought iron and steel pipe is better, one leading interest having taken so far this month more orders for tubular goods than in all of January. A very large natural gas line is being figured on, and may come up actively before long. Discounts on iron and steel pipe are reported as firmly held.

**Boiler Tubes.**—The new demand for locomotive and merchant tubes is only fair, most large consumers being covered on contracts up to July. Discounts are still being materially shaded.

**Old Material.**—Leading consumers of scrap seem to be covered for the time being and are out of the market as active buyers. The market is firm and dealers are not anxious to sell, believing that prices on scrap will be better in the near future. The visible supply of heavy steel scrap is light, and if an order for 5000 tons came on the market it would probably advance prices 25c. to 50c. per ton. A sale of 500 tons of heavy steel scrap is reported at $11.75 and 600 tons of machine-shop turnings at about $7.50, delivered. For delivery to consumers' mills in the Pittsburgh and other consuming districts that take Pittsburgh freights dealers quote as follows:

| | |
|---|---|
| Heavy steel melting scrap, Steubenville, Follansbee, Brackenridge, Sharon, Monessen, Midland and Pittsburgh delivery | $11.50 to $11.75 |
| Compressed side and end sheet scrap | 10.25 to 10.50 |
| No. 1 foundry cast | 11.25 to 11.50 |
| Bundled sheet scrap, f.o.b. consumers' mills, Pittsburgh district | 9.25 to 9.50 |
| Rerolling rails, Newark and Cambridge, Ohio, Cumberland, Md., and Franklin, Pa. | 11.75 to 12.00 |
| No. 1 railroad malleable stock | 10.00 to 10.25 |
| Railroad grate bars | 8.50 to 8.75 |
| Low phosphorus melting stock | 13.25 to 13.50 |
| Iron car axles | 18.75 to 19.25 |
| Steel car axles | 13.25 to 13.75 |
| Locomotive axles, steel | 19.75 to 20.25 |
| No. 1 busheling scrap | 9.75 to 10.00 |
| No. 2 busheling scrap | 7.00 to 7.25 |
| Machine shop turnings | 7.50 to 7.75 |
| Old carwheels | 10.75 to 11.00 |
| Cast-iron borings | 8.00 to 8.25 |
| *Sheet bar crop ends | 12.00 to 12.25 |
| Old iron rails | 12.75 to 13.00 |
| No. 1 railroad wrought scrap | 10.75 to 11.00 |
| Heavy steel axle turnings | 8.50 to 8.75 |
| Heavy breakable cast scrap | 10.75 to 11.00 |

*Shipping point.

**Coke.**—The local market is quiet and prices are only fairly strong. We continue to quote standard makes of blast-furnace coke for prompt shipment from $1.50 to $1.60; on contracts for delivery up to July 1, $1.65, and for delivery over all of 1915, at $1.75 per net ton at oven. Standard makes of 72-hour foundry coke are held at about $2 for prompt shipment and from $2.15 up to $2.50 on contracts. The Connellsville Courier gives the output of coke in the upper and lower Connellsville regions for the week ending January 30 as 242,608 tons, an increase over the previous week of 28,398 tons.

## Chicago

CHICAGO, ILL., February 9, 1915.—(*By Wire.*)

Such changes as have come in the Chicago situation with another week, though of no great importance, are in the direction of a better situation. Business in general lacks continuity and the impetus of a definite expansion, but the volume is unquestionably larger in many directions. The leading wire interest announces a further advance of $1 a ton and the week sees a resumption of mill operations in a limited way, at Moline, Gary and South Chicago, while with the local bar-iron mills bookings have increased sufficiently to warrant the advancing of minimum quotations at least 50c. per ton. Rail and structural business developed during the week was insignificant except for a structural order of 1600 tons for work in the South. Plates continue to be the weak element in the market for the heavier products. The galvanized sheet situation is beginning to break slightly, with the willingness of spelter producers to take orders for March shipment, and although prices have now advanced to approximately 8c. most of the mills are willing to quote on the little sheet business offering for immediate shipment on the basis of 3c., Pittsburgh. In the pig-iron market inquiry for iron for export shipment is a feature, although the problem of securing vessel capacity for delivery presents great difficulties

**Pig Iron.**—The very modest pig iron inquiry for local consumption is further diminished in importance by reason of the increasing inquiry for export iron which now aggregates more than 200,000 tons. The American Radiator Company which has been in the market for iron for both its foreign and domestic plants has taken a considerable tonnage, but in common with other buyers is now confronted with the lack of vessel tonnage for delivery. It is intimated that the price of Southern iron which during January fell below $9.50 in a number of instances, is now much more firmly pegged at that level in anticipation of this foreign movement. Local iron is moving in a small way with tonnages limited in size. More important buying which has been under consideration appears to have been postponed for the time. An Indiana wagon maker is taking figures on 1200 tons of charcoal iron. The selling of iron of other than regular grading analysis at special prices which may or may not figure back to the basis of official quotations, continues to dominate the market. The following quotations are for iron delivered at consumers' yards, except those for Northern foundry, malleable Bessemer and basic iron, which are f.o.b. furnace and do not include a switching charge averaging 50c. a ton:

| | |
|---|---|
| Lake Superior charcoal, Nos. 2, 3, 5 | $15.75 |
| Lake Superior charcoal No. 4 | 16.25 |
| Lake Superior charcoal, Nos. 1 and 6 | 16.75 |
| Northern coke foundry, No. 1 | $13.25 to 13.75 |
| Northern coke foundry, No. 2 | 13.00 to 13.25 |
| Northern coke foundry, No. 3 | 12.50 to 13.00 |
| Southern coke, No. 1 f'dry and 1 soft | 13.75 to 14.25 |
| Southern coke, No. 2 f'dry and 2 soft | 13.50 to 13.75 |
| Malleable Bessemer | 13.00 to 13.25 |
| Standard Bessemer | 15.50 |
| Basic | 12.50 to 13.00 |
| Low phosphorus | 20.00 to 20.50 |
| Jackson Co. and Ky. silvery, 6 per cent. | 16.90 to 17.40 |
| Jackson Co. and Ky. silvery, 8 per cent. | 17.90 to 18.40 |
| Jackson Co. and Ky. silv'y, 10 per cent. | 18.90 to 19.40 |

(*By Mail*)

**Rails and Track Supplies.**—There is some improvement to be noted in this market, but it is slow. There have been no tonnages of significance out in the past week and prices are unchanged. The railroads are ordering out track supplies for early spring delivery in normal volume. We quote standard railroad spikes at 1.50c. to 1.60c., base; track bolts with square nuts, 1.90c. to 2c., base, all in carload lots, Chicago; tie plates, $23.50 to $25, f.o.b. mill, net ton; standard section Bessemer rails, Chicago, 1.25c., base; open-hearth, 1.34c.; light rails, 25 to 45 lb., 1.07c.; 16 to 20 lb., 1.12c.; 12 lb., 1.17c.; 8 lb., 1.22c.; angle bars, 1.50c., Chicago.

**Structural Material.**—There is a continued scarcity of structural orders in the Chicago district, and car inquiry is slow in broadening out. In structural shapes the feature outstanding is the 1600 tons taken by the Modern Steel Structural Company, Waukesha, for work in the South. The Lyon & Healy building is still pending, and no farther steps have been taken toward closing. The long delayed order for 1000 refrigerator cars for the Illinois Central has been awarded to the American Car & Foundry Company, and the Burlington is now taking figures on 70 locomotives. Outside of the above there is little inquiry especially worthy of note. We continue to quote for Chicago delivery of plain shapes from mill, 1.289c.

We quote for Chicago delivery of structural material, from store, 1.75c.

**Plates.**—A tonnage of tank plate for fabrication in the West has been placed with local mills and something is also expected from recent car orders. Further than this the persistent irregularities in price are the best tokens of scanty orders, although the shutting down of two Ohio mills, one permanently, may affect the situation favorably. We quote for Chicago delivery of plates from mill 1.239c. to 1.289c.

We quote for Chicago delivery of plates out of stock 1.75c.

**Sheets.**—The galvanized sheet situation has cleared somewhat and most of the mills are again quoting, though for immediate shipment only, on the basis of 3c., Pittsburgh, for No. 28. Spelter producers are now taking orders for March delivery. Buyers of galvanized, naturally, have cut their purchases to a minimum in view of the cost of spelter and very little business is going. Sheet-mill operations here are, in consequence, somewhat reduced. Black sheets are unchanged but a stronger feeling prevails with respect to blue annealed, with the shutting down of some mill capacity. We quote for Chicago delivery from mill: No. 10 blue annealed, 1.489c.; No. 28 black, $1.989c.; No. 28 galvanized, 3.189c.

We quote for Chicago delivery from jobbers' stocks as follows, minimum prices applying on bundles of 25 or more: No. 10 blue annealed, 1.95c.; No. 28 black, 2.55c.; No. 28 galvanized, 3.55c.

**Bars.**—Improvement in the hard steel bar demand is indicated by the resumption this week of the Republic Iron & Steel Company's Moline mill. The 12-in. mill is to be started immediately, and it is probable that the 10-in. mill will be put into action in the near future. Demand for reinforcing bars grows steadily and specifications for standard bars are in somewhat better volume. Bar-iron tonnage now coming out is gradually putting the mill books in better shape and minimum prices are being quoted at 1.02½c. with considerable business at 1.05c. We quote for mill shipments as follows: Bar iron, 1.02½c. to 1.07½c.; soft steel bars, 1.289c.; hard steel bars, 1.20c.; shafting in carloads, 65 to 68 per cent. off; less than carloads, 60 to 65 per cent. off.

We quote store prices for Chicago delivery: Soft steel bars, 1.65c.; bar iron, 1.65c.; reinforcing bars, 1.65c. base, with 5c. extra for twisting in sizes ½ in. and over and usual card extras for smaller sizes; shafting 62 per cent. off.

**Rivets and Bolts.**—The competitive situation in bolts and nuts appears to have been in a measure relieved with the closing of some of the more important business recently in the market, and discounts now prevailing are less extreme than have been noted in connection with recent transactions. Irregularities in rivet prices appear to be confined very largely to the smaller sizes, particularly ½ in. We have revised quotations as follows: Carriage bolts up to ⅜ x 6 in., rolled thread, 80-20; cut thread, 80-15; larger sizes, 80; machine bolts up to ¾ x 4 in., rolled thread, 80-25; cut thread, 80-20; larger sizes, 80-5; coach screws, 85-5; hot pressed nuts, square head, $6.80 to $6.60 off per cwt.; hexagon, $7.80 to $7.60 off per cwt. Structural rivets, ¾ to 1¼ in., 1.45c. to 1.55c., base, Chicago, in carload lots; boiler rivets, 10c. additional.

We quote out of store: Structural rivets, 2.00c.; boiler rivets, 2.10c.; machine bolts up to ¾ x 4 in., 75-15; larger sizes, 70-10-10; carriage bolts up to ⅜ x 6 in., 75-10; larger sizes, 70-15 off; hot pressed nuts, square head, $6, and hexagon, $6.70 off per cwt.

**Wire Products.**—Announcement of a further advance of $1 a ton in the price of wire effective Thursday, February 11, has been made by the leading interest, influenced doubtless by the satisfactory volume in which nails and fencing are moving to the trade. The stock-

ing up by dealers in wire nails in anticipation of spring building while somewhat conservative, in keeping with the generally reduced volume of new construction, more nearly approaches normal than has been true for some time. We quote to jobbers as follows: Plain wire, No. 9 and coarser, base, $1.589; wire nails, $1.789; painted barb wire, $1.789; galvanized, $2.189; polished staples, $1.789; galvanized, $2.189, all Chicago.

**Cast-Iron Pipe.**—Specifications for city requirements in the Middle West continue to appear in fair tonnages. The 200 tons for Appleton, Wis., was let to the American Cast Iron Pipe Company, and the 4250 tons for Portland, Ore., has been postponed until February 15. The 200 tons for Redford, Mich., is also pending. Prospective lettings in the near future include 1100 tons for Milwaukee, Wis., 300 to 500 tons for Battle Creek, Mich., 500 tons for Bay City, Mich., and 140 tons for Ottumwa, Iowa. We quote as follows, per net ton, Chicago: Water pipe, 4 in., $25.50; 6 to 12 in., $23.50; 16 in. and up, $23, with $1 extra for gas pipe.

**Old Material.**—Consumers of scrap, particularly rolling-mill grades, still appear content with recent purchases and are showing little or no interest in further buying. The week brought out some inquiry for heavy melting steel and a moderate tonnage of this grade has been placed. A few grades of scrap, which during the recent downward reaction were carried to an extreme, show a slight firming up which represents an adjustment of the market rather than any new accession of strength. There is, however, a greater scarcity of scrap coming into the market which will make for a higher level of quotations. Railroad offerings include 1200 tons from the Milwaukee and 700 tons from the Northern Pacific lines. We quote for delivery at buyers' works, Chicago and vicinity, all freight and transfer charges paid, as follows:

*Per Gross Ton*

| | |
|---|---|
| Old iron rails | $11.50 to $12.00 |
| Old steel rails, rerolling | 9.75 to 10.25 |
| Old steel rails, less than 3 ft. | 10.00 to 10.25 |
| Old carwheels | 10.00 to 10.50 |
| Heavy melting steel scrap | 9.50 to 9.75 |
| Frogs, switches and guards, cut apart | 9.50 to 9.75 |
| Shoveling steel | 8.75 to 9.00 |
| Steel axle turnings | 7.25 to 7.50 |

*Per Net Ton*

| | |
|---|---|
| Iron angles and splice bars | $11.25 to $11.75 |
| Iron arch bars and transoms | 11.25 to 11.75 |
| Steel angle bars | 8.25 to 8.50 |
| Iron car axles | 13.75 to 14.25 |
| Steel car axles | 11.00 to 11.50 |
| No. 1 railroad wrought | 8.75 to 9.25 |
| No. 2 railroad wrought | 8.25 to 8.75 |
| Cut forge | 8.25 to 8.75 |
| Steel knuckles and couplers | 8.50 to 8.75 |
| Steel springs | 9.00 to 9.50 |
| Locomotive tires, smooth | 8.50 to 9.00 |
| Machine shop turnings | 5.25 to 5.75 |
| Cast borings | 4.75 to 5.25 |
| No. 1 busheling | 8.00 to 8.25 |
| No. 2 busheling | 7.00 to 7.25 |
| No. 1 boilers, cut to sheets and rings | 5.50 to 6.00 |
| Boiler punchings | 8.25 to 8.50 |
| No. 1 cast scrap | 9.00 to 9.25 |
| Stove plate and light cast scrap | 8.25 to 8.50 |
| Grate bars | 8.00 to 8.25 |
| Railroad malleable | 8.00 to 8.25 |
| Agricultural malleable | 7.25 to 7.50 |
| Pipes and flues | 6.75 to 7.25 |

## Philadelphia

PHILADELPHIA, PA., February 9, 1915.

Demand is not much increased in any direction, but there is a slight improvement in the purchasing of miscellaneous products which has inspired a better sentiment. Railroad buying is proceeding on a conservative scale, but it is believed that activity in this direction will grow as the business of the lines improves and they begin to reap the benefit of the higher freight rates recently allowed. Rail buying is disappointingly slow, the taking of other maintenance-of-way supplies being relatively better. The two industries which seem most active are shipbuilding and the making of automobiles, and both have been stimulated by war conditions. In bars and plates specifications have been fair, but transactions worthy of individual mention are few. Structural material continues unsatisfactory. Sheets are suffering from sharp competition. Billets are quiet. Pig iron appears to be moving steadily in small lots, and hope is derived from the fact that deliveries are keeping up. Some relief is indicated for the ferromanganese situation in the near future. In old material there appears to be no change in activity or prices. Foreign inquiries of many kinds continue to be received, but the difficulty of ocean transportation is a barrier to business.

**Iron Ore.**—An interesting fact in connection with foreign ore is that freight rates on Sagmenera ore from Spain to this country have advanced from 6½c. to 8¾c. per unit, a circumstance which indicates an opportunity for Lake Superior ore when demand revives. Arrivals at this port in the week ended February 6 were 6250 tons from Chile and 9918 tons from Sweden.

**Pig Iron.**—This market shows little if any change, but the aggregate of small sales, most of which are under 100 tons, keeps up, and it is evident that there is no diminution of melting. Those who have been out among consumers have found a better feeling everywhere, though this is not based on any substantial betterment in business. One transaction, and the only large one which has come to light, calls for the delivery in the second quarter of 6000 tons of Lebanon low phosphorus, the purchaser being an eastern Pennsylsylvania steel company. Of standard low phosphorus only about 300 tons have been sold. Foreign inquiries are multiplying, but so far no business seems to have developed except one sale of 500 tons to a French consumer. An inquiry from Italy specifies deliveries of 5000 tons per month of low phosphorus, but the terms are c.i.f. delivered, and sellers do not see how they can do otherwise than make their price f.o.b. seaboard here. Basic has been devoid of activity, with the exception of about 250 tons sold for shipment to the West. Makers of iron pipe are willing to buy, as they usually are, if they can get very low prices. Virginia iron has been in but light demand, though deliveries are keeping up. Prices show no change, despite the fact that statistics for 1914, which are now complete, show that with one or two exceptions pig-iron makers suffered a loss in every month of that year. Stocks in the Virginia district continue to increase and in the South they are doing so more heavily than in other districts. In eastern Pennsylvania stocks in January showed a slight decrease despite a small decrease in sales. Quotations for standard brands for early delivery in buyers' yards in this district are as follows:

| | |
|---|---|
| Eastern Penna. No. 2 X foundry | $14.25 to $14.50 |
| Eastern Penna. No. 2 plain | 14.00 to 14.25 |
| Virginia No. 2 X foundry | 15.25 |
| Virginia No. 2 plain | 15.00 |
| Gray forge | 13.50 to 13.75 |
| Basic | 13.50 to 14.00 |
| Standard low phosphorus | 20.00 to 21.00 |

**Ferroalloys.**—The quotation for 80 per cent. ferromanganese continues nominal at $68, seaboard. No shipments have yet been made from the other side, but recent advices reiterate that the embargo will soon be raised. It is understood, however, that the quantities to be shipped will be restricted in size and that the total amount will be apportioned pro rata among a number of producers. Some rather anxious inquiries have developed from interests that are beginning to have fears regarding their future supply. The quotation for 50 per cent. ferrosilicon is unchanged at $71 to $73, Pittsburgh.

**Bars.**—Inquiry for steel bars is light with some makers, while others report a fair run of specifications, none of which, however, is worthy of individual mention. Quotations vary on immediate business, one seller asking 1.30c., Philadelphia, and others 1.25c. Others, while willing to do 1.25c. for February, are asking 1.30c. for March. For the second quarter there is a more general tendency to ask 1.35c. The Virginian Railway has closed for its second quarter requirements at 1.15c., Pittsburgh. The demand for iron bars is not showing much improvement, but the price is holding steady at 1.20c., Philadelphia.

**Plates.**—The largest prospects before the trade are those emanating from the shipyards. The Fore River Shipbuilding Corporation will build two tank vessels for the Texas Company which will require between 5000 and 6000 tons of plates. The Munson Line is taking bids on a vessel in addition to one ordered a few weeks ago which went to the Sparrows Point yards. The question of delivery probably will determine the successful bidder on the second boat. The Baldwin Locomotive Works has received an order for about 100 loco-

motives, but they are of small size and will not mean much to the material trade. Miscellaneous specifications were a little better than in the preceding week. Quotations are unchanged at 1.25c., Philadelphia, for immediate business, but for March 1.30c. is asked and 1.30c. to 1.35c. for the second quarter.

**Steel Rails.**—The complete apportionment of the rails ordered by the Baltimore & Ohio Railroad is as follows: Carnegie Steel Company, 7000 tons; Illinois Steel Company, 5000 tons; Pennsylvania Steel Company, 4000 tons and Cambria Steel Company, 9000 tons. The Maine Central, which was in the market for 8500 tons, has deferred the purchase. The Chicago, Burlington & Quincy has taken bids on about 20,000 tons additional to its recent purchase of about 28,000 tons.

**Structural Material.**—The contract for the 1250 tons of material which will be required by the office building of the Victor Talking Machine Company, Camden, N. J., for which the George A. Fuller Company has the general contract, is still pending. In this territory there is little else of interest aside from an addition to the Strand Hotel, Atlantic City, which will take about 300 tons of steel shapes. The Cambria Steel Company has been awarded 1680 tons for the Deshler Hotel, at Columbus, Ohio. The quotation on such current business as there is stands at 1.25c., Philadelphia, but there is not enough inquiry out to satisfactorily test the market.

**Sheets.**—Prompt business is holding up rather well, but there is no improvement either in demand or prices for future delivery. Competition is sharper from the West and it is asserted that concessions are being made. Local makers continue to quote 1.45c., Philadelphia, for No. 10 blue annealed sheets.

**Billets.**—The market is quiet in all directions. The quotation is unchanged at $21.40 for open-hearth rolling billets. Forging steel is about $4 a ton higher, according to specifications.

**Coke.**—The dullness of the market is unbroken. Quotations for prompt standard Connellsville furnace coke range from $1.50 to $1.60 per net ton at oven and $1.65 to $1.70 for first half shipment. Standard Connellsville foundry is quoted at $2 to $2.10 for prompt and $2 to $2.25 for contract. Freight rates from the principal producing districts are as follows: Connellsville, $2.05; Latrobe, $1.85, and Mountain, $1.65.

**Old Material.**—The sentiment is better, but actual betterment in business is coming very slowly. Local sellers are still devoting themselves largely to serving Western consumers. Quotations for delivery in buyers' yards in this district, covering eastern Pennsylvania and taking freight rates from 35c. to $1.35 per gross ton, are as follows:

| | |
|---|---|
| No. 1 heavy melting steel | $10.00 to $10.50 |
| Old steel rails, rerolling | 10.50 to 11.00 |
| Low phosphorus heavy melting steel scrap | 14.00 to 14.50 |
| Old steel axles | 13.50 to 14.00 |
| Old iron axles | 17.50 to 18.00 |
| Old iron rails | 13.00 to 14.00 |
| Old carwheels | 10.50 to 11.00 |
| No. 1 railroad wrought | 12.00 to 12.50 |
| Wrought iron pipe | 10.00 to 10.50 |
| No. 1 forge-fire | 8.00 to 8.50 |
| Bundled sheets | 8.00 to 8.50 |
| No. 2 busheling | 7.75 to 8.25 |
| Machine shop turnings | 8.00 to 8.50 |
| Cast borings | 8.00 to 8.50 |
| No. 1 cast | 12.00 to 12.50 |
| Grate bars, railroad | 8.50 to 9.00 |
| Stove plate | 8.50 to 9.00 |
| Railroad malleable | 9.00 to 9.50 |

## Cincinnati

CINCINNATI, OHIO, February 9, 1915.

**Pig Iron.**—Sales are few and far apart, but one contract for 1000 tons of Northern foundry iron is reported by a local house as being closed with a melter in this territory. Several propositions on iron for delivery in the last half are under consideration, but buyers are extremely slow in taking hold, although there does not seem to be a very wide divergence of opinion between sellers and consumers as to prices. As low as $9.75, Birmingham, is known to have been inserted in a few contracts for third quarter shipment, but in most instances shipments are to commence in the second quarter. A local buyer is inquiring for 400 tons of Southern foundry and a central Ohio melter wants approximately 1000 tons of mixed Northern and Southern grades, all for first half delivery. There is a slight gain in the melt of the jobbing foundries, but the stove makers are running beyond in the consumption of iron. Northern foundry is held around $12.75 to $13, Ironton, and it is reported that last half business could be placed at these figures. Malleable shops are mostly quiet as very little railroad work is being done. There is no new demand for Ohio silvery iron but the price is firm. Based on freight rates of $2.90 from Birmingham and $1.26 from Ironton, we quote, f.o.b. Cincinnati, as follows:

| | |
|---|---|
| Southern coke, No. 1 f'dry and 1 soft | $12.90 to $13.40 |
| Southern coke, No. 2 f'dry and 2 soft | 12.40 to 12.90 |
| Southern coke, No. 3 foundry | 11.90 to 12.40 |
| Southern No. 4 foundry | 11.40 to 11.90 |
| Southern gray forge | 10.90 to 11.40 |
| Ohio silvery, 8 per cent. silicon | 16.26 to 16.51 |
| Southern Ohio coke, No. 1 | 15.01 to 15.51 |
| Southern Ohio coke, No. 2 | 14.01 to 14.51 |
| Southern Ohio coke, No. 3 | 13.76 to 14.01 |
| Southern Ohio malleable Bessemer | 14.26 |
| Basic, Northern | 14.26 |
| Lake Superior charcoal | 15.25 to 17.25 |
| Standard Southern carwheel | 26.90 to 27.40 |

**Coke.**—Sales continue to be confined to carload lots of foundry coke, but shipments on old contracts are said to be satisfactory. There is no new demand for furnace coke in this territory. We quote 48-hr. coke in all three fields at $1.50 to $1.75 per net ton at oven, and 72-hr. brands around $2 to $2.40.

**Finished Material.**—The unsettled quotations on spelter have caused sheet mills to hesitate about taking on any future business for galvanized sheets. No. 28 galvanized sheets are quoted for prompt shipment only at 3.15c., f.o.b. Cincinnati or Newport, Ky. No. 28 black sheets are obtainable at 2c., Cincinnati or Newport. Business from the South is on the mend, but is yet far from normal. Warehouse prices on steel bars and structural shapes remain around 1.70c. Hoops and bands are quiet, but it is stated that there is some business in sight that may be consummated at an early date, mostly from consumers in Kentucky.

**Old Material.**—Business continues quite dull, there being a very limited demand from any source. The rolling mills are not consuming anything like the normal tonnage, and it is understood that they all have large stocks. The minimum figures given below represent what buyers are willing to pay for delivery in their yards, southern Ohio and Cincinnati, and the maximum quotations are dealers' prices f.o.b. at yards:

| | |
|---|---|
| *Per Gross Ton* | |
| Bundled sheet scrap | $6.25 to $6.75 |
| Old iron rails | 11.00 to 12.00 |
| Relaying rails, 50 lb. and up | 19.75 to 20.25 |
| Rerolling steel rails | 9.75 to 10.25 |
| Melting steel rails | 8.75 to 9.25 |
| Heavy melting steel scrap | 8.50 to 9.00 |
| *Per Net Ton* | |
| No. 1 railroad wrought | $7.50 to $8.00 |
| Cast borings | 4.00 to 4.50 |
| Steel turnings | 4.00 to 4.50 |
| Railroad cast scrap | 9.25 to 9.75 |
| No. 1 machinery cast scrap | 9.75 to 10.25 |
| Burnt scrap | 6.00 to 6.50 |
| Old iron axles | 13.50 to 14.00 |
| Locomotive tires (smooth inside) | 8.75 to 9.25 |
| Pipes and flues | 5.50 to 6.00 |
| Malleable and steel scrap | 6.75 to 7.25 |
| Railroad tank and sheet scrap | 4.50 to 5.00 |

## Buffalo

BUFFALO, N. Y., February 9, 1915.

**Pig Iron.**—Producers report light inquiry and little new business. The favorable feature is that users have been specifying fairly well against their contracts. Prices remain the same as reported last week. We quote as follows, f.o.b. furnace, for first half delivery:

| | |
|---|---|
| No. 1 foundry | $13.25 to $13.50 |
| No. 2 X foundry | 13.00 to 13.25 |
| No. 2 plain | 13.00 |
| No. 3 foundry | 13.00 |
| Gray forge | 12.75 to 13.00 |
| Malleable | 13.00 to 13.25 |
| Basic | 13.50 |
| Charcoal, regular grades and analysis.* | 15.75 to 17.00 |

*The minimum applying only to direct shipments from furnace instead of from storage yards or docks at Buffalo.

**Finished Iron and Steel.**—Prices are holding firmly to the schedule recently established as announced last week: 1.15c. Pittsburgh for March and 1.20c. for second quarter on bars, plates and shapes. The impression

prevails in some quarters that in March 1.20c. Pittsburgh will be asked for current delivery on new orders and that 1.25c. will be in force for such business before the end of the second quarter. The price of hoops is higher now, being 1.30c. So far this month specification on contracts and also new business is coming forward in much more satisfactory volume than last month, the notification of the advance in prices apparently bringing out a greater placement than would otherwise have been the case. The Ferguson Steel & Iron Company, this city, will supply 400 tons of Havemeyer bars for the Eastern Grain Mill & Elevator Company. The Corrugated Bar Company, Buffalo, has taken 500 tons of corrugated bars for the terminal warehouse for the Mercantile Development Company, at Charlotte, N. C., and the American Bridge Company has 100 tons for the Pennsylvania Feldspar Company, at Barnard, N. Y., near Rochester.

**Old Material.**—It has developed that several large consumers have covered their minimum requirements for the first quarted at current prices, which are not quite as high as dealers had anticipated. This is particularly true of turnings and borings, in which the business has been large. This covering will have a tendency to hold prices for these commodities down unless a considerable betterment in business occurs. Dealers' asking prices remain generally unchanged from last week, although one or two dealers are inclined to ask a little higher, averaging about 25c. per ton. We quote as follows per gross ton, f.o.b. Buffalo:

| | |
|---|---|
| Heavy melting steel | $10.25 to $10.75 |
| Low phosphorus steel | 12.50 to 13.00 |
| No. 1 railroad wrought scrap | 10.00 to 10.50 |
| No. 1 railroad and machinery cast | 10.50 to 11.00 |
| Old steel axles | 12.00 to 12.50 |
| Old iron axles | 16.00 to 16.50 |
| Old carwheels | 10.00 to 10.50 |
| Railroad malleable | 9.50 to 10.00 |
| Machine shop turnings | 5.50 to 6.00 |
| Heavy axle turnings | 8.50 to 9.00 |
| Clean cast borings | 6.00 to 6.50 |
| Old iron rails | 11.00 to 11.50 |
| Locomotive grate bars | 9.00 to 9.50 |
| Stove plate (net ton) | 8.25 to 8.75 |
| Wrought pipe | 6.50 to 7.00 |
| Bundled sheet scrap | 7.00 to 7.50 |
| No. 1 busheling scrap | 7.50 to 8.00 |
| No. 2 busheling scrap | 5.25 to 5.75 |
| Bundled tin scrap | 10.00 |

## Cleveland

CLEVELAND, OHIO, February 9, 1915.

**Iron Ore.**—An investigation of conditions in the foreign ore trade indicates that importations will not be affected by either a scarcity of ocean carriers or an advance in ocean freight rates, and consequently that the demand for Lake Superior ores by Eastern furnaces will not be increased by reason of conditions growing out of the war. Furnaces as yet are taking no interest in the ore market. The ore movement from the docks in January showed a falling off of nearly 50 per cent. as compared with January, 1914, the movement of the month being 249,123 tons as compared with 455,779 tons in January, 1914. We repeat 1914 prices as follows: Old range Bessemer, $3.75; Mesaba Bessemer, $3.50; old range non-Bessemer, $3; Mesaba non-Bessemer, $2.85.

**Pig Iron.**—There is not much activity. A few sales of Northern and Southern foundry grades in small lots are reported. A central Ohio implement maker has purchased 400 tons of No. 2 foundry for the second quarter from a local furnace at a price reported to be below the regular quotation. Northern and Southern iron are on the same price basis in Cleveland, but at the ruling market prices Southern producers have some advantage for shipment to a number of northern Ohio points, and this condition has resulted in shading by Northern furnaces to shut out this competition. Southern iron is generally quoted at $9.50, Birmingham, for No. 2 for prompt shipment and $9.75 for the second quarter, but business has been taken at $9.50 for the second quarter and $9.75 for the last half. Shipping orders continue to improve, indicating a greater volume of melt. We quote, delivered Cleveland, as follows:

| | |
|---|---|
| Bessemer | $14.55 |
| Basic | 13.45 |
| Northern No. 2 foundry | 13.50 |
| Southern No. 2 foundry | $13.50 to 14.25 |
| Gray forge | 13.00 |
| Jackson Co. silvery, 8 per cent. silicon | 16.62 to 17.12 |
| Standard low phos. at furnace | 19.75 to 20.00 |

**Coke.**—Foundry coke consumers are taking shipments somewhat better. The new demand is light, being limited to spot shipment orders for foundry grades. We quote standard Connellsville furnace coke at $1.50 to $1.55 per net ton at oven for spot shipment. The better grades of foundry coke are held from $2.25 to $2.50 for prompt shipment and contracts.

**Finished Iron and Steel.**—The recent advance in price on steel bars, plates and structural material to 1.15c., Pittsburgh, for March delivery, and 1.20c. for the second quarter has had the effect of bringing out some second quarter contracts on which the 1.15c. quotation had been made before the advance. There is a moderate increase in the volume of orders and a better sentiment in the steel trade. Forge shops are busier than they have been for some time, causing a better demand for forging billets, and implement makers are now specifying quite freely on contracts. A large order for its steel requirements has been placed by a local maker of automobile parts. Prices are firm except on plates, which still can be had at 1.05c., Pittsburgh, for desirable orders for early shipment. The demand for structural material has improved, but fabricating shops are still naming low prices. The American Bridge Company has taken the steel for the addition to the New England Building, Cleveland, a change in the plans having increased the amount of steel required from 2000 tons to 2850 tons. The Forest City Steel & Iron Company has taken 500 tons for a mill building for the Union Rolling Mill Company. The price on galvanized sheets has further advanced to 3.15c., Ohio mill, for No. 28 and orders are being taken only for prompt shipment. Other sheets are unchanged at 1.80c. for No. 28 black and 1.30c. to 1.35c. for No. 10 blue annealed. Bar iron has not improved in demand or price. We quote iron bars at 1c. to 1.05c. at mill for outside shipment and 1.15c. for Cleveland delivery. Warehouse prices are 1.80c. for steel bars and 1.90c. for plates and structural material.

**Bolts, Nuts and Rivets.**—The advance in steel prices has tended to further strengthen the bolt and nut market and local mills appear to be holding fairly well to regular discounts. There is a moderate volume of new business. Rivet specifications are quite good. We quote structural rivets at 1.45c. to 1.50c., Pittsburgh, and boiler rivets at 1.55c. to 1.60c. Regular discounts are as follows: Common carriage bolts, ⅝ x 6 in., smaller or shorter, rolled thread, 80 and 10 and 5 per cent.; cut thread, 80 and 10 per cent.; larger or longer, 75 and 15 per cent.; machine bolts with h.p. nuts, ⅝ x 4 in., smaller or shorter, rolled thread, 80 and 10 and 10 per cent.; cut thread, 80 and 10 and 5 per cent.; larger or longer, 80 per cent.; coach and lag screws, 85 and 5 per cent.; square h.p. nuts, blank or tapped, $6.50 off; hexagon h.p. nuts, blank or tapped, $7.40 off; c.p.c. and t. square nuts, blank or tapped, $6.20 off; hexagon, ⅝ in. and larger, $7.50 off; 9/16 in. and smaller, $8 off; semi-finished hexagon nuts, ⅝ in. and larger, 85, 10 and 10 per cent.; 9/16 in. and smaller, 85, 10, 10 and 10 per cent.

**Old Material.**—With the largest consumers covered for their early requirements, the market is not active. Locally it is particularly dull and the sales that are being made are for outside shipment. Sales during the week included 1500 tons of turnings and 500 tons of borings taken by a Youngstown mill. The market is not firm. However, quotations are unchanged except on iron and steel axles that were advanced 50c. a ton a week ago and which have sagged back to their former level. We quote f.o.b. Cleveland as follows:

| | |
|---|---|
| *Per Gross Ton* | |
| Old steel rails, rerolling | $11.00 to $11.75 |
| Old iron rails | 12.00 |
| Steel car axles | 12.75 to 13.25 |
| Heavy melting steel | 9.50 to 9.75 |
| Old carwheels | 10.00 to 10.50 |
| Relaying rails, 50 lb. and over | 22.50 |
| Agricultural malleable | 8.00 to 8.50 |
| Railroad malleable | 10.00 to 10.25 |
| Light bundled sheet scrap | 8.00 to 8.50 |
| *Per Net Ton* | |
| Iron car axles | $16.00 to $16.50 |
| Cast borings | 6.00 to 6.25 |
| Iron and steel turnings and drillings | 5.25 to 5.50 |
| Steel axle turnings | 6.00 to 6.25 |
| No. 1 busheling new | 8.50 to 8.75 |
| No. 1 busheling old | 8.25 to 8.50 |
| No. 1 railroad wrought | 9.25 to 9.75 |
| No. 1 cast | 10.00 to 10.50 |
| Stove plate | 7.50 to 7.75 |

## Birmingham

BIRMINGHAM, ALA., February 8, 1915.

**Pig Iron.**—The situation continues uneventful, with the exception of an increased tendency among consumers to sound the market for the third quarter. Manufacturers are not inclined to do business for any portion of the second half on the present basis, it being their firm conviction that bottom has been reached. They are especially inclined to look forward to a large foreign business, which they think will come as soon as ship room increases and freight rates are lowered. The cotton movement should help pig iron, as iron is taken on cotton ships as ballast. Inquiries from Italy are especially good, while the principal inquiry from Great Britain is for steel billets. Orders for rails for Chile and Russia are reported. Barb wire is believed to be going abroad in large quantities, but shipments are kept secret. The steel situation continues to present a better aspect than pig iron. The Tennessee Company's rail mill is continuing on full day turn and the American Steel & Wire Company's plant at Fairfield is increasing operations. It was pleasing to Southern iron operators during the week to note resumption of operations at a pipe shop, railroad shops and other points of pig-iron consumption. A gradual betterment in lumber and the railroad business seems to have begun to affect the iron market, at least to the extent of preventing further reduction in prices. Current business has been for small lots at $9.75. We quote, per gross ton, f.o.b. Birmingham district furnaces, as follows:

| | |
|---|---|
| No. 1 foundry and soft | $10.00 to $10.25 |
| No. 2 foundry and soft | 9.50 to 9.75 |
| No. 3 foundry | 9.00 to 9.25 |
| No. 4 foundry | 8.75 to 9.00 |
| Gray forge | 8.50 to 8.75 |
| Basic | 9.50 to 10.00 |
| Charcoal | 22.50 to 23.00 |

**Cast-Iron Pipe.**—J. R. McWane, vice-president of the American Cast Iron Pipe Company, has been chosen president, to succeed J. J. Eagan, who becomes chairman of the board of directors, a new position. The pipe works of the Central Foundry Company at Holt has resumed after a shutdown of two weeks. The larger pipe works report the reception of additional orders, which enable them to see good-sized operations ahead for some time. Much of the business has come from the Middle West. Sanitary pipe is not as active as water and gas. We quote, per net ton, f.o.b. pipe shop yards, as follows: 4-in., $20; 6-in. and upward, $18, with $1 added for gas pipe.

**Coal and Coke.**—Coke commands good prices on account of the continuous small output. We quote, per net ton, f.o.b. oven, as follows: Furnace coke, $2.75 to $2.90; foundry, $3.25 to $3.40, up to $3.75 for the best grade. The coal output is on a 50 per cent. basis, with prices unsatisfactory.

**Old Material.**—The demand for scrap has shown some improvement in spots, but the general situation is one of slow trading in small lots. We quote nominal prices, per gross ton, f.o.b. dealers' yards, as follows:

| | |
|---|---|
| Old iron axles | $13.00 to $13.50 |
| Old steel axles | 12.50 to 13.00 |
| Old iron rails | 12.00 to 12.50 |
| No. 1 railroad wrought | 8.50 to 9.00 |
| No. 2 railroad wrought | 7.50 to 8.00 |
| No. 1 country wrought | 8.00 to 8.50 |
| No. 2 country wrought | 7.00 to 7.50 |
| No. 1 machinery cast | 9.50 to 10.00 |
| No. 1 steel scrap | 8.00 to 8.50 |
| Tram carwheels | 8.50 to 9.00 |
| Stove plate | 8.00 to 8.50 |

## Boston

BOSTON, MASS., February 9, 1915.

**Old Material.**—The market shows little change, prices being practically the same as last week. The weather has not been conducive to the moving of stocks, which is usually a factor at this season. The quotations given below are based on prices offered by the large dealers to the producers and to the small dealers and collectors, per gross ton, carload lots, f.o.b. Boston and other New England points which take Boston rates from eastern Pennsylvania points. Mill prices are approximately 50c. per ton higher.

| | |
|---|---|
| Heavy melting steel | $8.25 to $8.50 |
| Low phosphorus steel | 13.75 to 14.75 |
| Old steel axles | 12.75 to 13.25 |
| Old iron axles | 20.25 to 20.75 |
| Mixed shafting | 12.00 to 12.25 |
| No. 1 steel wrought and soft steel | 8.25 to 8.75 |
| Skeleton (bundled) | 5.50 to 5.75 |
| Wrought-iron pipe | 7.00 to 7.50 |
| Cotton ties (bundled) | 5.25 to 5.75 |
| No. 2 light | 3.25 to 3.75 |
| Wrought turnings | 5.00 to 5.50 |
| Cast borings | 5.00 to 5.25 |
| Malleable | 7.50 to 7.75 |
| Stove plate | 7.00 to 7.50 |
| Grate bars | 5.25 to 5.50 |
| Machinery cast (price to consumers) | 11.25 to 11.50 |

## St. Louis

ST. LOUIS, MO., February 8, 1915.

**Pig Iron.**—Demand is altogether for small lots, but it has been broader, indicating that more melters are interested in immediate shipment. Specifications on contracts have been freer with new business mostly in carload and 100-ton lots. Prices are a little firmer.

**Coke.**—There is no activity. Melters are apparently well covered and there is no change in prices.

**Finished Iron and Steel.**—Business is reported generally better in all directions, though individual orders can scarcely be said to be any larger. There are, however, more of them and they are more widely spread over the St. Louis trade territory, indicating an awakening of interest. They will also average larger. Buyers generally are taking the recent advance in a friendly spirit, particularly in structural and in bars in which the most pronounced improvement is to be found. The coal mines and lumber roads are showing more interest than formerly, particularly the latter. The wagon and implement trade is also somewhat more active. In warehouse stock there is increasing activity and the aggregate of business being done is very good, considering the general conditions. Prices are firmly held for stock out of warehouse at these figures: Soft steel bars, 1.70c.; iron bars, 1.65c.; structural material, 1.80c.; tank plates, 1.80c.; No. 10 blue annealed sheets, 2c.; No. 28 black sheets, cold rolled, 2.55c.; No. 28 galvanized sheets, black sheet gauge, 3.55c.

**Old Material.**—A slow but really steady increase in demand is manifest in this market, except, perhaps, in relayers which are rather slow. Mills and foundries are taking some scrap and indicating a likelihood of taking more as the spring business opens up. Dealers are holding prices fairly firmly and buying attractive lots against the future. Lists out during the week include about 1200 tons from the Missouri, Kansas and Texas, 1000 tons from the Chicago, Milwaukee and St. Paul, 5000 tons from the Big Four and 7000 tons from the Southern. We quote dealers' prices, f.o.b. St. Louis, as follows:

*Per Gross Ton*

| | |
|---|---|
| Old iron rails | $10.00 to $10.25 |
| Old steel rails, re-rolling | 10.25 to 10.50 |
| Old steel rails, less than 3 feet | 11.50 to 12.00 |
| Relaying rails, standard section, subject to inspection | 21.00 to 23.00 |
| Old carwheels | 10.25 to 10.50 |
| No. 1 railroad heavy melting steel scrap | 9.50 to 9.75 |
| Shoveling steel | 8.75 to 9.00 |
| Frogs, switches and guards cut apart | 9.75 to 10.00 |
| Bundled sheet scrap | 6.00 to 6.25 |

*Per Net Ton*

| | |
|---|---|
| Iron fishplates | $10.75 to $11.00 |
| Steel angle bars | 9.00 to 9.25 |
| Iron car axles | 15.00 to 15.50 |
| Steel car axles | 10.75 to 11.00 |
| Wrought arch bars and transoms | 11.25 to 11.50 |
| No. 1 railroad wrought | 8.25 to 8.50 |
| No. 2 railroad wrought | 8.00 to 8.25 |
| Railroad springs | 8.75 to 9.00 |
| Steel couplers and knuckles | 9.00 to 9.25 |
| Locomotive tires, 42" and over, smooth inside | 9.00 to 9.25 |
| No. 1 dealers' forge | 7.50 to 7.75 |
| Mixed borings | 5.25 to 5.50 |
| No. 1 busheling | 7.75 to 8.00 |
| No. 1 boilers, cut to sheets and rings | 6.25 to 6.50 |
| No. 1 railroad cast scrap | 9.50 to 10.00 |
| Stove plate and light cast scrap | 8.00 to 8.25 |
| Railroad malleable | 7.25 to 7.50 |
| Agricultural malleable | 6.75 to 7.00 |
| Pipes and flues | 6.25 to 6.50 |
| Railroad sheet and tank scrap | 6.25 to 6.50 |
| Railroad grate bars | 7.50 to 7.75 |
| Machine shop turnings | 5.75 to 6.00 |

## New York

NEW YORK, February 10, 1915.

**Pig Iron.**—More activity is reported by some dealers in this market, while others say that dullness still rules. Sales of small lots aggregating over 2000 tons have been made since last week, 1000 tons being various quantities of Buffalo iron made up of 300 and 200 tons and smaller lots. Most of these purchases are understood to have been made by Connecticut consumers. Specifications on contracts are good and inquiries aggregate fair tonnages. The Boston foundry interest, referred to in these columns last week, is reported to have closed for part at least of its 2600-ton inquiry at a price slightly lower than $13, Buffalo. Various rumors are afloat regarding foreign inquiries, but many of them are without foundation or have resulted in no business. One definite inquiry of 3000 tons from Italy is being figured on which may result in a sale, but freight and other war conditions are deterrents to any foreign business. Virginia iron is still quotable at $12.50 at furnace for No. 2 X, the same grade of Buffalo iron being rather firmly held at $13 at furnace. Northern iron for tidewater delivery is quoted as follows: No. 1 foundry, $14.45 to $14.95; No. 2 X, $14.20 to $14.45; No. 2 plain, $13.95 to $14.20. Southern iron may be quoted at $14.50 for No. 1 and $14 to $14.25 for No. 2.

**Ferroalloys.**—Prospects of a lifting of the British embargo on ferromanganese are undoubtedly brighter, according to representatives here of British producers. Definite information, however, is unobtainable by them as to when any shipments may be expected. It is hardly likely that any of the alloy will be received here this month. Meantime consumers, while pretty well covered, are exhibiting a little more anxiety as to future supplies and inquiries are more frequent. Quotations remain at $68, seaboard, subject to ability to ship, with resale lots commanding considerably higher figures when obtainable. It is reported that the Carnegie Steel Company has been making domestic sales at about $80 to $85 delivered, and has sold also 3000 tons to Italy. It is now said that the company has withdrawn from the market. Foreign inquiries are still rather numerous, but no business is reported. Ferrosilicon, 50 per cent., is normal at $71 to $73, Pittsburgh.

**Finished Iron and Steel.**—The announcement of higher prices for March and beyond has not developed any large increase in buying. Buyers under contract are well protected in both volume and price and general conditions have not stimulated business sufficiently to bring about much new demand. The larger companies are holding the present prices for immediate deliveries or at the convenience of mills, but there are other sellers, and these are the ones reporting improved buying, who are closing at to-day's prices for delivery in March. Some interest attaches to the prices at which contracts will actually go next month for second quarter, as under present plans the prices would be $2 to $3 above first quarter contracts. It follows, however, that the attitude of the large mills has had a very encouraging influence and has helped materially to better sentiment. The week is quite lean as to new projects in structural lines or as to new railroad car inquiries or steel rail purchases. An apartment house on East Seventy-ninth street, 400 tons, a building for the D. & N. Realty Company, Twenty-seventh street and Broadway, 800 tons, and some bridge work for the Erie, 150 tons, are up for figures. The lettings include 1800 tons for the Isaac A. Hopper office building, Broadway and Thirtieth street, to Harris Silvers Baker Company; 450 tons for the Bowery Y. M. C. A. to the George A. Just Company; 400 tons for the two bridges for the Cumberland Valley to the Pennsylvania Steel Company; 350 tons for the Universal Film Mfg. Company, Leonia, N. J., to the Belmont Bridge Company; 450 tons for a warehouse for Joseph T. Ryerson & Son, Jersey City, to the Levering & Garrigues Company; 1000 tons for a pier-shed, New Bedford, Mass., to the Boston Bridge Works; 725 tons for bridges in New Hampshire, part to the Penn Bridge Company; 225 tons for a bridge in Baltimore to the Virginia Bridge & Iron Company; 400 tons for the Staten Island court house, St. George, to the Phoenix Iron Company; 300 tons for the United Light & Power Company, 201st street, for turbine foundations to Lewis F. Shoemaker & Co., and 200 tons for the D. & H. Power Company to the Eastern Steel Company. Post & McCord are low bidders for the 13,000 tons for the third tracking elevated work in Brooklyn; Snare & Triest have 250 tons for a pier in the navy yard, Brooklyn, the steel for July delivery, and L. J. Rice has received the general contract for School No. 48, Bronx borough, requiring about 500 tons. We quote mill shipments of steel bars, shapes and plates at 1.10c. to 1.15c., Pittsburgh, or 1.26c. to 1.31c., New York, and refined iron bars at 120c. to 1.25c., New York. From store we quote iron and steel bars at 1.80c. to 1.85c., New York, and plates and shapes at 1.85c. to 1.90c.

**Cast-Iron Pipe.**—On February 15 Yonkers, N. Y., will open bids on 300 tons of 8-in. and Revere, Mass., on 375 tons of 6, 8, 10 and 12 in. Municipal lettings are now becoming rather scarce. Private buying, however, still continues somewhat better than usual for the season. Carload lots of 6-in. are available at $20 to $20.50 per net ton, tidewater.

**Old Material.**—Small quantities of heavy melting steel scrap have been sold for delivery to consumers in eastern Pennsylvania, but business in this line shows no snap. It is interesting to note, however, that among recent buyers are some steel consumers whose views have for a considerable time been much under the price paid the past week. Rolling-mill stock continues extremely dull, but foundries are buyers of moderate quantities of cast scrap. Dealers continue to quote as follows, per gross ton, New York:

| | | |
|---|---|---|
| Old girder and T rails for melting | $8.00 to | $8.25 |
| Heavy melting steel scrap | 8.00 to | 8.25 |
| Relaying rails | 19.00 to | 19.50 |
| Rerolling rails (nominal) | 8.25 to | 8.50 |
| Iron car axles | 15.00 to | 15.25 |
| Steel car axles | 11.25 to | 11.75 |
| No. 1 railroad wrought | 9.75 to | 10.25 |
| Wrought-iron track scrap | 9.25 to | 9.75 |
| No. 1 yard wrought, long | 9.25 to | 9.75 |
| No. 1 yard wrought, short | 8.25 to | 8.50 |
| Light iron | 3.50 to | 4.00 |
| Cast borings | 5.75 to | 6.25 |
| Wrought turnings | 5.75 to | 6.25 |
| Wrought pipe | 7.50 to | 7.75 |
| Carwheels | 9.00 to | 9.25 |
| No. 1 heavy cast, broken up | 10.25 to | 10.50 |
| Stove plate | 8.00 to | 8.25 |
| Locomotive grate bars | 7.00 to | 7.50 |
| Malleable cast | 7.00 to | 7.50 |

## British Iron Market Easier

### Germany Quoting Steel Hoops for Mediterranean—Rails for Belgium

*(By Cable)*

LONDON, ENGLAND, February 10, 1915.

The pig-iron market is rather reactionary and dull. Consumers seem pretty well covered, but shipments are very poor. Hematite pig iron is slightly easier, and the hematite ore situation is less menacing. Freights are also easier, but they now turn on Germany's policy toward neutral vessels and crews in British waters. Active furnaces in the three principal districts number 167 against 164 a year ago. Stocks of pig iron in Connal's stores are 119,756 tons, against 118,257 tons last week.

Steel is very firm. Germany is quoting c.i.f. prices to Mediterranean littoral, shipping by Dutch ports. It has asked 187½ fr. ($36.94), c.i.f. Greece, for steel hoops to be shipped via Amsterdam. Tin plates are strong with more doing. Buying of rails for Belgium is expected shortly. We quote as follows:

Tin plates, coke 14 x 20, 112 sheets, 108 lb., f.o.b. Wales, 15s. ($3.65), against 14s. 6d. to 14s. 9d. ($3.52 to $3.58) last week.

Cleveland pig iron warrants, 56s. ($13.62), against 56s. 8d. ($13.78) last week.

No. 3 Cleveland pig iron, makers' price, f.o.b. Middlesbrough, 56s. 6d. ($13.74), against 57s. ($13.86) last week.

Steel black sheets, No. 28, export, f.o.b. Liverpool, £9 15s. ($47.44).

Steel ship plates, Scotch, delivered local yards, £8 10s. ($41.36).

Steel rails, export, f.o.b. works port, £7 ($34.06).

Hematite pig iron, f.o.b. Tees, 90s. ($21.89), against 95s. to 100s., nominal ($23.09 to $24.30), last week.

Sheet bars (Welsh), delivered at works in Swansea Valley, £6 5s. to £6 10s. ($30.41 to $31.63), against £6 ($29.20) last week and £5 10s. ($26.76) two weeks ago.

Steel joists, 15 in., export, f.o.b. Hull or Grimsby, £8 ($38.93).

Steel bars, export, f.o.b. Clyde, £8 5s. ($40.14).

# Metal Market

NEW YORK, February 10, 1915.

## The Week's Prices

Cents Per Pound for Early Delivery

| | Copper, New York | | | Lead | | Spelter | |
|---|---|---|---|---|---|---|---|
| Feb. | Lake | Electro-lytic | Tin, New York | New York | St. Louis | New York | St. Louis |
| 3 | 15.12½ | 14.75 | 37.00 | 3.80 | 3.62½ | 8.00 | 7.87½ |
| 4 | 15.12½ | 14.75 | 36.50 | 3.80 | 3.65 | 8.00 | 7.87½ |
| 5 | 15.12½ | 14.75 | 37.00 | 3.80 | 3.67½ | 8.12½ | 8.00 |
| 6 | 15.12½ | 14.75 | ..... | 3.80 | 3.67½ | 8.12½ | 8.00 |
| 8 | 15.25 | 14.75 | 37.00 | 3.80 | 3.67½ | 8.12½ | 8.00 |
| 9 | 15.25 | 14.75 | 36.00 | 3.80 | 3.67½ | 8.25 | 8.00 |

Prime Lake is higher and prompt shipments are difficult to obtain; electrolytic is unchanged. Tin is inactive and lower here, but stronger in London. Lead continues in good demand and is firm. Choice brands of spelter are almost impossible to find and quotations are higher. Antimony is stronger, but otherwise without new features.

### New York

**Copper.**—The situation in copper has undergone but little change except that the scarcity of prime Lake has become more acute and some brands are unobtainable for early delivery. Business has been done in future deliveries at 15.25c., but the market is nominal so far as spot or nearby metal is concerned. Large quantities of Lake could be sold if offered, but the producers are either sold out or are holding tight to any metal they may have. Of course, the arsenical brands can be had and at lower prices than prevail for prime Lake, but in the manufacture of ammunition, into which most of the Lake is going, only first-class grades are used. It remains true that the consumption of electrolytic in the manufacture of commonplace articles of trade is light and the demand for this kind of copper is even less than it has been of late. The quotation for electrolytic is 14.75c., cash, New York, and it is probable that concessions of ⅛c. might be made if the right seller is found, although most of the trade are holding for the higher price.

**Tin.**—In the latter part of last week the almost complete absence of demand forced prices below London parity. At that time sellers were going after business eagerly and showed as much zest in trying to capture small lot orders as they usually do to sell lots of 25 tons or over. Concessions were offered to large consumers, but little business was done, and the dullness continued into this week. Yesterday the market was almost demoralized by a report that the freight congestion at London was being relieved, and sales were made at 36.50c. and later at 35.62½c. The average price was more than 2c. per lb. under the London parity and 2½c. under the import cost. There is a feeling that the London market is unduly inflated. In view of the low price yesterday it was thought that London would open easier to-day, but on the contrary spot standard opened 10s. higher at £174 and future standard £1 higher at £154. Plenty of tin was offered yesterday, but only those whose needs were urgent did any buying. The arrivals this month total 1235 tons, and there is afloat 4290 tons.

**Lead.**—The good demand has continued up to date according to reports of most of the sellers, some of whom say they have sold their entire output for February and are disinclined to sell further ahead. Copper and lead seem to be moving in sympathy with each other and the trade would not be surprised to see another advance in lead. The New York quotation is 3.80c. and that at St. Louis is a trifle higher at 3.67½c.

**Spelter.**—The market for brass mill spelter is practically a nominal one, inasmuch as choice brands can be bought only with the greatest difficulty. For some extra choice brands as high as 14c. is asked. The quotations for prime Western yesterday were 8.25c., New York, and 8c., St. Louis. Prices abroad are high. While the demand from the brass mills is of a character to make the market strong, there are intimations that manipulation has more or less to do with the stringency and consequent high prices.

**Antimony.**—The situation is but little changed, but all brands are higher. Quotations are 19.50c. to 20c. for Cookson's, 18.50c. to 19.50c. for Hallett's, and 17c. to 18c. (duty paid) for Chinese. Of all brands, the last is most easily obtainable. Occasional foreign inquiries continue to appear.

**Old Metals.**—The market is quiet. Dealers' selling prices are unchanged as follows:

| | Cents per lb. |
|---|---|
| Copper, heavy and crucible | 13.00 to 13.50 |
| Copper, heavy and wire | 12.50 to 13.00 |
| Copper, light and bottoms | 11.50 to 11.75 |
| Brass, heavy | 9.00 to 9.25 |
| Brass, light | 7.50 to 7.75 |
| Heavy machine composition | 11.50 to 11.75 |
| Clean brass turnings | 8.75 to 9.00 |
| Composition turnings | 9.75 to 10.00 |
| Lead, heavy | 3.45 |
| Lead, tea | 3.20 |
| Zinc, scrap | 5.50 |

### Chicago

FEBRUARY 9.—The advance in spelter prices continues unchecked. Sales in large lots for March delivery were made last week at 7.92½c., while the spot market for smaller quantities subsequently rose to 8.20c. to 8.25c. The market in other respects was quiet and, except for tin, other metal prices are resting at the high point of a week ago. We have revised our prices and quote as follows: Casting copper, 14.50c. to 14.75c.; Lake copper, 14.75c. to 15c., for prompt shipment; small lots, ⅛c. to ¼c. higher; pig tin, carloads, 37.50c.; small lots, 40c.; lead, desilverized, 3.75c., and corroding, 4c., for 50-ton lots; in carloads, 2½c. per 100 lb. higher; spelter, 8.20c. to 8.25c.; sheet zinc, 10.50c.; Cookson's antimony, 22c., for cask lots; other grades, 18c. to 20c. On old metals we quote buying prices for less than carload lots as follows: Copper wire, crucible shapes, 11.75c.; copper bottoms, 10c.; copper clips, 11.50c.; red brass, 10.75c.; yellow brass, 8.50c.; lead pipe, 3.10c.; zinc, 4.75c.; pewter, No. 1, 27c.; tinfoil, 32c.; block tin pipe, 35c.

### St. Louis

FEBRUARY 8.—The spelter market continues its rather uncertain way, with the quotations to-day ranging from 8c. to 8⅛c. It is somewhat difficult to get, holders being inclined not to let go freely. Lead is firmer at 3.65c. Tin is steady at 38½c.; Lake copper, 15c.; electrolytic copper, 14¾c.; Cookson's antimony, 20c. In the Joplin zinc ore market there has been further continuance of the excited condition, with the top price on settlement reaching $71.20 per ton, the basis range for 60 per cent. being $64 to $69. On calamine the basis range is $38 to $45, and the top settlement about $50. Lead ore has been firm at $47. Miscellaneous scrap metals are quoted as follows: Light brass, 5c.; heavy yellow brass, 7c.; heavy red brass and light copper, 8c.; heavy copper and copper wire, 9c.; pewter, 20c.; tinfoil, 25c.; tea lead, 3c.; zinc, 3c.; lead, 3c.

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The Chamber of Commerce, Cleveland, Ohio, which recently inaugurated a system of compiling monthly reports of local industrial conditions from data secured from a large number of manufacturers, states in its last circular that "reports from the iron and steel trades indicate clearly that business men have a feeling of confidence for the immediate future." Advices received from 60 companies engaged in the manufacture of iron and steel and operating metal-working plants show that these plants operated in 1914 with 84.9 per cent. of the labor they employed in 1913; that their volume of business in 1914 was 77.7 per cent. of that in 1913, and that their payrolls for 1914 were 84.5 per cent. of their 1913 payrolls.

## Iron and Industrial Stocks

NEW YORK, February 10, 1915.

For a considerable portion of the past week the market for stocks showed a declining tendency. There were two unfavorable factors, one of which was Germany's warning that she intended to establish a war zone around Great Britain and Ireland and the other was a series of disquieting rumors as to dividend reductions on prominent stocks. These influences gradually lost their effect, however, and on Monday and Tuesday of this week prices strengthened considerably. One stock, Bethlehem Steel common, was particularly conspicuous for its steady advance throughout the whole of this period, reaching the highest price in its history, notwithstanding the authoritative statement made that no dividend is in sight. The range of prices on active iron and industrial stocks from Wednesday of last week to Tuesday of this week was as follows:

| | | | |
|---|---|---|---|
| Allis-Chal., pref. | 36 | Int. Pump, pref. | 6⅛ |
| Am. Can, com. | 27½-29 | Nat. En. & St., com. | 10¾ |
| Am. Can, pref. | 94½-95 | Nat. En. & St., pref. | 79½ |
| Am. Car & Fdy., com. | 44 - 45 | Pressed Stl., com. | 29½-30½ |
| Am. Car & Fdy., pref. | 113⅞ | Pressed Stl., pref. | 98 -100 |
| Am. Loco., com. | 21⅛- 22 | Ry. Spring, com. | 22 - 23 |
| Am. Loco., pref. | 83 - 83⅞ | Republic, com. | 19½-20⅝ |
| Am. Steel Fdries. | 27 | Republic, pref. | 72 - 75⅝ |
| Bald. Loco., com. | 30 - 32½ | Rumely Co., com. | 1¼- 1⅝ |
| Bald. Loco., pref. | 99 -101½ | Rumely Co., pref. | 4⅛- 5 |
| Beth. Steel, com. | 48½- 57½ | Sloss, com. | 25 - 26½ |
| Beth. Steel, pref. | 104 -104⅝ | Pipe, pref. | 34½ |
| Colorado Fuel. | 24¾- 25½ | U. S. Steel, com. | 39¾- 41⅝ |
| Deere & Co., pref. | 88¼- 88½ | U. S. Steel, pref. | 102¾-104½ |
| General Electric. | 141¼-142½ | West'gh'se Elec. | 69¾- 71½ |
| Gt. No. Ore Cert. | 29⅛- 32¾ | Chic. Pneu. Tool. | 45½- 49½ |
| Int. Harv. of N. J., com. | 94¾- 96 | Cambria Steel. | 41⅞- 42½ |
| Int. Harv. of N. J., pref. | 113 | Cruc. Steel, com. | 13½ |
| | | Cruc. Steel, pref. | 78¾- 79½ |
| | | Harb.-Wk. Ref., com. | 45 |
| | | Harb.-Wk. Ref., pref. | 98⅞ |

### Dividends

The American La France Fire Engine Company, 1 per cent. on the common stock, payable February 15.

The International Nickel Company, quarterly 2½ per cent. on the common stock, payable March 1.

The Pratt & Whitney Company, regular quarterly, 1½ per cent. on the preferred stock, payable February 15.

The Niles-Bement-Pond Company, regular quarterly, 1½ per cent. on the preferred stock, payable February 15.

The American Radiator Company, regular quarterly, 1¾ per cent. on the preferred stock, payable February 15, and 4 per cent on the common stock, an increase of 1½ per cent. over the previous rate, payable March 31.

The Studebaker Corporation, regular quarterly, 1¾ per cent. on the preferred stock, payable March 1.

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### Swedish Iron Trade in Ten Months of Last Year

According to statistics recently given out by the Swedish Iron Association, exports of iron and steel for the first 10 months of 1914 show a reduction of 104,400 tons, or 25 per cent., as compared with the corresponding period of 1913. The totals for the periods were 313,300 and 417,600 metric tons respectively. Pig iron shows the greatest decrease, 34,000 tons, or from 165,000 to 131,000 tons, with hot-rolled bars second, showing a decrease of 25,100 tons. Exports in August were the lowest, being 13,600 tons as compared with 47,800 tons in August, 1913, while in September and October they increased to 32,400 and 23,200 tons respectively, the corresponding months in 1913 showing exports of 45,400 and 55,500 tons respectively. Iron-ore exports also fell decidedly, being 1,472,000 tons less for the first 10 months of 1914 than for the same period in 1913.

The total production of pig iron showed a decline of 56,000 tons for the first 10 months as against the 1913 figures. During the same period blooms and ingots dropped by no less than 81,600 tons. The war is the chief cause in the reduction, though the existing water famine was an important factor. On November 1 out of 124 blast furnaces, 66 were in blast; of 260 Lancashire hearths, 110 were running; of 24 Bessemer converters, 9 were operating, and of 75 open-hearth furnaces, 49 were producing steel.

The exportation of iron ore from the port of Lulea from May until November last year, the shipping season, was 1,034,350 tons against 1,471,450 tons in the same period in 1913.

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### Argentina's Gain in Exports to this Country

According to recent statistics of Argentina's trade, as given by Consul General Leo J. Keena, of Buenos Aires, the imports for the first nine months of 1914 amounted to $219,303,254 as against $306,081,715 in the like period in 1913, a falling off of $86,778,461. Exports in the January-September period of 1914 were valued at $260,015,805 against $382,742,366 in the first three quarters of 1913, a decrease of $122,726,561. The country's imports from the United Kingdom showed a falling off of about $20,000,000 in the nine months of the 1914 period; from the United States, about $15,000,000; from Germany, about $18,000,000; from France, about $9,000,000, and from Italy, about $7,000,000. Exports to the United States alone showed an increase in the January-September period last year, the gain being $19,016,175. The decrease in exports to the United Kingdom was about $25,000,000 and to the three other countries mentioned from $12,000,000 to $14,000,000.

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### International Engineering Congress

The technical success of the International Engineering Congress, to be held at San Francisco, September 20 to 25, is now well assured. According to W. A. Cattell, secretary of the Congress, Foxcroft Building, San Francisco, Cal., the committee on papers is able to count on 200 to 250 papers and reports contributed by authors representing some 18 different countries.

The committee of management is now issuing to all important engineering societies, in this country and abroad, invitations to appoint official delegates to attend the sessions of the congress, and the presence of a considerable body of such delegates is expected. Membership in the congress with the privilege of purchasing volumes of the proceedings is open to all interested in engineering work.

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The Treadwell Engineering Company, Easton, Pa., held its annual meeting of stockholders February 2, at which the following officers were elected: President, J. H. Killinger, New York; vice-president and general manager, W. J. Stoop, Easton; secretary and treasurer, W. I. Gassert, Easton. These officers were also chosen as directors and additional members of the board elected were: M. H. Treadwell, H. N. Dougherty, R. M. Dorsey, F. R. Stevens and J. S. Casey, of New York; Grant Weidman, Lebanon, Pa.; Alexander Hamilton, Chicago; and S. N. Craig, Pittsburgh. The company reports a great deal of work having recently come in and enough orders are now on the books to keep the plant running in full for three months.

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The German Government will occupy more than 40,000 sq. ft. of exhibit space at the Panama-Pacific International Exposition. The display will be divided between the palaces of education, liberal arts, varied industries and machinery. There will be displays in the palace of fine arts and other exhibits palaces by German industries. It is said that the war has stimulated German interest in the exposition for previous to it Germany was not participating officially.

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The Continental Can Company reports net earnings of $1,339,434 in the year ended December 31, 1914, against $788,016 in 13 months ended December 31, 1913, and a surplus of $885,080 after the payment of preferred stock dividends, against a surplus of $390,328 at the close of 1913.

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The net earnings per mile of 98 of the country's largest railroads in the last six months of 1914 were $2061 compared with $2276 in the same period in 1913, or $215 less per mile, according to statistics of the Interstate Commerce Commission.

## Lecture Course in Trade Journalism

The first Forum in Industrial Journalism has been established at the New York University under the auspices of the New York Trade Press Association. During this academic year a series of eight lectures is to be given in February, March, April and May by men prominent in the class, technical and trade journal field. These lectures will be for students and any others interested—men and women. Cards of admission may be had by addressing the secretary of the New York Trade Press Association, S. T. Henry, at 231 West Thirty-ninth street, New York.

The idea of the Forum is to provide a nucleus for a university course where young men and women who plan to take up trade journalism may be trained for the profession. The first lecture of the course was delivered on the evening of Wednesday, February 10, by Charles T. Root, president Root Newspaper Association and publisher of the Dry Goods Economist, New York. Mr. Root's subject was "The History and Development of Industrial Journalism." Other lectures are scheduled by E. A. Simmons, Railway Age Gazette; James H. McGraw, McGraw Publishing Company; H. M. Swetland, United Publishers' Corporation; John A. Hill, Hill Publishing Company; W. H. Taylor, David Williams Company, publisher of *The Iron Age;* W. H. Ukers, Tea and Coffee Trade Journal, and John Clyde Oswald, American Printer.

## Olmsted-Flint Company Changes

The Olmsted-Flint Company, leather belting manufacturer, announces the removal of its general headquarters and factory to Cambridge, Mass. On January 1, Frank M. Schiffmacher, who had previously been in charge of the manufacturing end of the business, purchased control and is now president and treasurer. The members of the concern, who had previously been in charge of the management, have retired from active interest. The retiring officers and directors include Willard I. Olmsted, North Reading, Mass., president; Stanley B. Flint, New York City, vice president, and George S. Baker, New York City, secretary and treasurer.

The Olmsted-Flint Company was organized in 1910 with offices at 136 Liberty street, New York, and its factory on Sullivan street, New York. A year ago the concern moved its plant to Lawrence, Mass., where it has been operating under a joint manufacturing agreement with F. W. McLanathan & Son, also leather belting manufacturers. In connection with its plant in Cambridge, the company will handle pulleys, shafting, hangers and other transmission appliances.

## Lackawanna to Build a Benzol Plant

The Lackawanna Steel Company, having decided to build a benzol plant in connection with its by-product coke ovens at Lackawanna, N. Y., has awarded the contract for the erection of the plant to the Otto Coking Company, Inc., 6 Church street, New York City, and construction work was started on Monday, February 8. It is the intention to have the plant in operation inside of five months.

The Warren Foundry & Machine Company held its annual stockholders' meeting at Phillipsburg, N. J., February 8. Directors were re-elected as follows: William H. Hulick, A. D. Chidsey, John S. Riegel, E. J. Fox, Chester Snyder, W. C. Hackett and James Ingham. The directors re-elected officers as follows: William H. Hulick, president and treasurer; A. D. Chidsey, vice-president and assistant treasurer; A. L. Reiley, secretary.

The Philadelphia Foundrymen's Association will have no business meeting this month. The regular date was February 3. Instead of this meeting the association has had 500 seats reserved at the Sunday Tabernacle for the evening of February 16, when the members and their friends will listen to Evangelist Sunday.

## New English Company to Make Tungsten

To supply the needs of tool steel makers in the Sheffield district of England, a new company, the High-Speed Alloys, Ltd., has been organized with a capital of about $250,000 to produce tungsten, according to Consul John M. Savage in the Daily Consular and Trade Reports, writing on November 6. Prior to the war the supply came solely from Germany. The company is backed by steel manufacturers of that district who represent about two-thirds of the makers of steel in which tungsten is used. Ability to produce tungsten of equal quality to that formerly imported is confidently expected.

Before the war the price was 57c. to 59c. per pound, delivered. Since then the price paid has averaged $1.22 per pound. For some years ferrotungsten has been made by at least one firm in England, but Sheffield users have a prejudice against this form of the metal, preferring the metallic state. American requirements have been supplied by home producers. An American firm is offering to deliver metallic tungsten in Sheffield market at $1.22 per pound.

## Whitaker-Glessner Absorbs Portsmouth

The Whitaker-Glessner Company, manufacturer of steel and iron sheets, Wheeling, W. Va., has bought the assets and assumed the liabilities of its subsidiary, the Portsmouth Steel Company, with works at Portsmouth, Ohio. The change was made for economical reasons only and the management will not be affected. The Portsmouth works consists of seven open-hearth furnaces, one blooming, one sheet-bar and tie-plate mill, 12 sheet mills, two of them being jobbing mills, a galvanizing shop and a finishing department for making corrugated sheets, roofing, siding, conductor pipe, ridging, culverts, etc. The Whitaker-Glessner Company now has 14 sheet and tin mills at Wheeling, 6 sheet mills at Martin's Ferry, Ohio, and 12 sheet mills at Portsmouth, Ohio.

## A Long Idle Furnace Blown In

The Bessie Furnace Company, New Straitsville, Ohio, has been reorganized and is now known as the Bessie Ferrosilicon Company. Its Bessie furnace, last active in 1909, has been completely rebuilt. The stack, stoves, engine equipment, ore bins, etc., are new. The stack was blown in February 4, and is now making about 70 tons of ferrosilicon per day. The entire output of the furnace will be handled by the Allen S. Davison Company, dealer in raw materials for iron and steel, Oliver Building, Pittsburgh. The furnace makes 10 to 13 per cent. ferrosilicon, guaranteed 0.1 per cent. or under in phosphorus and 0.05 or under in sulphur. At present the company is quoting $19 for 10 and 11 per cent. and $20 for 13 per cent., f.o.b. furnace, New Straitsville, Ohio.

The Republic Stamping & Enameling Company, Canton, Ohio, has taken over the plant, real estate and business of the General Stamping Company, and has increased its capital stock from $1,200,000 to $3,500,000. According to an announcement made by H. C. Milligan, president and manager of the Republic Company, the deal embodies advantageous agreements with the interests allied with the Berger Mfg. Company, by which the sheets used in the Republic's plant will be produced by these interests.

The annual banquet of the Atkins Pioneers, employees of E. C. Atkins & Co., saw manufacturers, Indianapolis, Ind., was held at the Spencer House in that city on the evening of February 6. The members have been employees 20 years or more. The organization, starting in 1906 with 60 members, now has 118.

The White Company, Cleveland, Ohio, has taken an order from the Russian government for 500 one-ton and 500 two-ton motor trucks, for war purposes. This company is now turning out motor trucks for France at the rate of 10 a day, having a standing order for that number.

## German Iron and Metal Trades

Scarcity of labor in the Lorraine iron-ore district is affecting the Westphalian pig-iron producers. Further enlistment will render it difficult to maintain the present restricted output. The Societé des Forges de la Providence has resumed operations at its Luxemburg mines and is forwarding ore to Westphalian plants.

The Pig Iron Syndicate's deliveries in the first half of 1914 suffered severely from the general decline in trade, the lowest being 70.3 per cent. of the June allotments, though an advance to 75.5 per cent. was made in July. In August they fell to 22 per cent., but a rise followed in September to 49.7 per cent., while the October share was 47.5 per cent. and the November 54.4 per cent., the percentage for December being 52.67. Present demand is confined largely to foundries making shells, some of which have been compelled to enlarge plants.

Steel bars are firmer, with large transactions reported for military purposes. Leading producers are trying to get an advance of 73c. to $1.22 per ton in Westphalia, but prices are not uniform. Basic bars are now at $25.55 to $25.79 for future delivery with better qualities at $26.76; for prompt delivery $27.25 is asked. Open-hearth brands are in particular request. Export business to neutrals is fair with prices about the same as domestic ones. Iron bars are in good demand, especially horse-shoe bars, the $2.53 advance for the present quarter, it is noted, being easily maintained.

Hoop iron now stands at $32.85 with specifications exceeding the deliveries effected. The Hoop Iron Association is encountering competition. Plates are more active at $27.01, with light plates quoted at $30.90. Production is about 60 per cent. of normal. Wire rods are falling, but tube makers are adhering to the recent advance of $3.65 to $4.87 per ton for gas and boiler tubes.

In general there is a serious complaint of a shortage of skilled labor. Attempts to substitute unskilled men for the skilled ones enlisted have almost entirely failed, it is reported. The Government is said to have been asked permission to employ Italians with no decision announced. Further enlistments, it is feared, will cause new restriction in output, especially if the coal miners are also requisitioned for the army. Resumption of negotiations to form syndicates postponed at the outbreak of the war was announced for the latter part of January.

The Rombach Iron Works is said to be planning to produce a new wide-flanged beam to compete with the Grey beams patented by the Deutsch-Luxemburg Company. Its maximum dimensions will be 600 mm. (23.6 in.). The Thyssen Company is turning out a type of wide-flanged beams ranging from 180 mm. to 750 mm. (7 to 29.5 in.) in hight especially adapted to building purposes. The Hagendingen works is also rolling thin-ribbed wide-flanged beams, the extra strength being ascribed to the ribbing. The Gelsenkirchen Works in Esch is also reported as a producer of wide-flanged beams.

The de Wendel plant at Hayingen, Lorraine, is reported to have started up again in all departments. Some of the furnaces are again in blast with iron obtained locally and they are supplying rolling mills at Rösslingen and the steel works at Fenderic. The furnaces at Moyeuvre are to be lighted again.

The Association of German Cycle Manufacturers has increased quotations owing to the advance in raw materials and labor.

The Union of German Electrical Fittings Makers has advanced prices 10 to 25 per cent. because of the scarcity of copper, rubber, etc.

The general meeting of the German Spelter Syndicate on January 12 decided to form a new organization known as the Spelter Works Union and to comprise all the members of the old syndicate with the exception of the Weinmann Works at Teplitz, Austria. It has been provisionally formed to endure until March 31, 1916. Demand is reported very satisfactory with sales exceeding output.

## Austrian Iron Trade in War Time

The bar section of the Austrian Steel Syndicate decided early in January not to raise prices for the first quarter pending a decision on the application of the Rokycan Iron works for admission to the syndicate. If this company is readmitted, prices will be raised from $2.03 to $5.07 per ton, the increase to be the greatest in Bohemia.

Plate prices are advanced $1.52 per ton; black sheets by $2.03; galvanized sheets by $4.05 and lead-coated sheets by $8.10.

Domestic deliveries of the steel syndicate for November were less than October, 1914, and much less than November, 1913. For the first 11 months of 1914 the output was 306,475 metric tons of bars, 93,810 tons of joists, 37,852 tons of plates and 57,206 tons of rails, being decreases of 37,571 tons, 20,395 tons, 6697 tons and 12,533 tons respectively, or a total falling off of 77,196 tons in the periods compared.

Most of the plants represented in the Association of Coal and Iron Masters and Engineers of Austria are now working to full capacity though mobilization interfered decidedly in the first weeks of the war. Plant expansion has taken place to produce shells, ammunition, etc. Foundries are slack. Wire and wire nails have improved somewhat since September, but prices remain low. The chain industry is getting better, but the screw trade is bad, with the agricultural implement industry stagnant. Of the 10,000,000 scythes produced annually in Austria, two-thirds are sold to Russia ordinarily, but this trade is dead.

## German Steel Syndicate's Output in 1914

The deliveries of the German Steel Works Union for 1914 as compared with 1913 are shown in the following table in metric tons, which also gives the deliveries of the three important classifications:

| | Semi-finished steel | Railroad material | Shapes | Totals |
|---|---|---|---|---|
| 1913..... | 1,680,692 | 2,879,742 | 1,777,471 | 6,337,905 |
| 1914..... | 1,141,480 | 2,190,642 | 1,666,444 | 4,998,566 |
| Decreases. | 539,212 | 689,100 | 111,027 | 1,339,339 |

This is a decrease in the total 1914 deliveries of over 21 per cent. from those of 1913, the falling off being largely since the war started. Data for each month of the war were given in *The Iron Age* of January 21 and February 4.

## German Iron-Ore Output for 1913

Germany's iron-ore output for 1913, excluding Luxemburg, was 28,607,903 metric tons against 27,199,944 tons in 1912, according to official statistics. Adding the Luxemburg minette production of 7,333,382 tons in 1913 and 6,533,930 tons in 1912 makes a total output of 35,941,285 tons in 1913 and 33,733,874 tons in 1912. Luxemburg contributed 20.4 per cent. of the total, Lorraine 58.8 per cent., Berg and Siegerland 7.6 per cent. and Nassau-Oberhessen 3.1 per cent. Only 11 per cent. of the ores mined came within the Bessemer limit of 0.05 per cent. phosphorus.

## Austrian Ore and Pig-Iron Output in 1913

The iron-ore output of Austria for 1913, according to recent official figures, was 3,039,824 metric tons or 112,638 tons in excess of 1912. The mining of manganese ore in 1913 amounted to 16,540 tons against 12,471 tons in 1912. In each case the 1913 output exceeded any for five years. Pig-iron production for 1913 was 1,757,564 tons or 2286 tons less than for 1912. The country had 42 blast furnaces in 1913 and 40 in 1912, of which 28 were active in 1913 against 30 in 1913.

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The biggest order ever placed for demountable rims to be used on motor cars has just been given to the Standard Welding Company, Cleveland, Ohio, by the Willys-Overland Company, Toledo. The order specifies delivery of nearly a half-million demountable rims in 1915. To produce this quantity more than 5000 tons of high-grade steel will be used.

# UNTANGLING PUBLIC OPINION

## Manufacturers' Association Urged by Walter Linn to Untie the Knot

An address entitled "Untangling Public Opinion" was made before the Pittsburgh Foundrymen's Association on the evening of January 18 by Walter Linn, associate secretary of the Pennsylvania Manufacturers' Association, Philadelphia. He spoke in part as follows:

"Instead of advising wage earners to save their pennies, we urge them to get a Victrola, patronize the 'movies' and buy automobiles on the instalment plan. Instead of suggesting that it would be well for them to go to bed early so that they could get up early and start to work, we invent new dance steps for them, open municipal halls, and move the clock back an hour or two in the morning to permit them to sleep off the effects.

"We deify idleness under the name of recreation, and we sympathize with the 'laborious' man as a victim of the 'cruel system.'

### LOOKING ON WORK AS RECREATION

"I do not wish to be interpreted as objecting to recreation. I like it as well as anybody, but it should not be bowed down to and worshiped. Man's mission on this globe is to work, and the only value of recreation is to fit him for better work. Happier still is the man who can be taught to look upon his work as recreation. That is what Benjamin Franklin tried to do, and what we are trying to undo today.

"We are inclined to frown at the individualism upon which every civilization in the history of the world has been built and to fawn upon the vagaries of socialism which are inevitably destructive to every people and every nation that favor them.

"Is it conceivable that we mean in this twentieth century to throw away all we have gained in the past at such great cost? Is it possible that the industrial evolution which has transformed us from an agricultural people into a manufacturing people and which has raised us to the pinnacle of national power does not constitute true progress? Is it thinkable that this wonderful city which has grown up around and because of the industries you gentlemen direct is merely an excrescence of industrial greed and selfish interests? Public opinion in the United States has been tending toward such erroneous conclusions. Germany and England are taking up the industrial evolution where we left off when we fell to trust busting, but we are doing our best to unravel the threads of the fabric we have woven and to set the United States back a hundred years in industrial methods and business liberties.

### LIBERTIES TAKEN WITH THE MANUFACTURER

"The manufacturer himself is more or less to blame for the condition to which he has been reduced. He has allowed agitators and uplifters to take liberties with him and his business that nobody else would allow them to take, and, consequently, he finds himself branded as a 'malefactor.' For his restraint, we devise special laws and draw up special regulations scarcely less rigorous than those governing a penitentiary—laws and regulations which are not applicable to any other business or vocation.

"Yes, public opinion is tangled, and the manufacturer is in the center of the knot.

"I should say that the way for him to get out is to begin to try and when he finds that he can't do it immediately, to keep on trying until he does. That is the way to succeed in business and it is the only way he will ever succeed in rehabilitating himself in public opinion. He must not be content with doing things, but at every step he must justify what he does. So far as general results go, he might as well be wrong as be right and have the people think he is wrong.

"He must fight his battles, as all successful battles are fought, with some sort of unity of purpose and organization.

"The Foundrymen's Association and the Pittsburgh Manufacturers' Association with which many of you are connected and which is part of the Pennsylvania Manufacturers' Association are evidences that you have grasped this idea here. Pennsylvania now has the largest State manufacturers' association in America, and, in the number of firms identified with it, it is no mean second to the National Association of Manufacturers. There are 27,500 manufacturers in Pennsylvania, employing more than 1,000,000 wage earners. If all of them were to adopt this plan how long would it take them to untangle public opinion in the Keystone State?"

# OUR EXPORTS TO BRAZIL

## Iron and Steel Exports in 1913 and 1914—Credits Should Not Be Shortened

WASHINGTON, D. C., February 8, 1915.—The Bureau of Foreign and Domestic Commerce has furnished the correspondent of *The Iron Age* with a detailed statement of the shipments from the United States of articles classified under the iron and steel schedule in the fiscal years 1913 and 1914. These figures are presented in considerably greater detail than in the ordinary statistical tables, especially in the item of machinery, thus enabling producers of special types of machinery to judge of the volume of the business of particular interest to them.

The total exports to Brazil of machinery of American manufacture in the fiscal year 1914 were valued at $4,269,176, as compared with $7,531,741 in 1913. The decline, amounting to 43 per cent., reflects the general depression which has prevailed in Brazil during the past 18 months and which has affected business more seriously than in any other important South American country. The largest item in these shipments in 1914 was sewing machines, to the value of $1,611,510, as compared with $1,677,141 in 1913. Locomotives, however, constituted the most important class in 1913, when they were valued at $2,310,853, as compared with $637,528 in 1914. The only important gain recorded in 1914 over the preceding year was in the exports of refrigerating machinery, which rose from $42,344 to $255,785. The details of our exports under the machinery schedule in the two years are presented in the following table:

*Exports of American Machinery to Brazil*

| | 1913 | 1914 |
|---|---|---|
| Adding machines | $26,500 | $19,337 |
| Air-compressing machinery | 55,702 | 52,374 |
| Brewers' machinery | 41,180 | 7,821 |
| Cash registers | 364,644 | 150,267 |
| Cotton gins | 44,451 | 23,276 |
| Elevators and elevating machinery | 94,637 | 50,056 |
| Gas and gasoline engines | 144,080 | 95,480 |
| Locomotives | 2,310,853 | 637,528 |
| Steam engines and parts | 303,592 | 232,196 |
| Other engines | 83,477 | 16,443 |
| Laundry machinery | 23,214 | 3,893 |
| Metal-working machinery | 346,187 | 115,974 |
| Milling machinery | 53,988 | 42,526 |
| Mining machinery | 285,119 | 111,693 |
| Printing presses | 100,186 | 38,201 |
| Pumps and pumping machinery | 120,456 | 45,818 |
| Refrigerating machinery | 42,344 | 255,785 |
| Sewing machines | 1,677,141 | 1,611,510 |
| Shoe machinery | 74,879 | 83,588 |
| Sugar-mill machinery | 153,590 | 100,926 |
| Textile machinery | 26,849 | 8,457 |
| Typesetting machines | 151,379 | 107,042 |
| Typewriting machines | 351,640 | 125,598 |
| Windmills | 22,847 | 24,287 |
| Sawmill machinery | 62,370 | 14,576 |
| Other wood-working machinery | 58,526 | 19,544 |
| All other machinery | 511,910 | 274,970 |
| Total | $7,531,741 | $4,269,176 |

The total exports to Brazil of all imports in the iron and steel schedule, except machinery, amounted in 1914 to $4,719,297, as compared with $6,170,083 in 1913. The largest single item in these general exports included steel rails, fish plates and other railroad track material, aggregating $1,868,869 in 1914, as compared with $1,420,027 in 1913. It is highly significant of conditions in Brazil in 1914 that such heavy declines should be recorded in staples like builders' hardware, firearms, pipe and fittings, iron sheets and plates, tin plates and structural iron and steel. The details of the general exports of iron and steel products are shown in the following table:

*Exports of American Iron and Steel Products to Brazil*

| | 1913 | 1914 |
|---|---|---|
| Pig Iron | $11,574 | $17,423 |
| Iron and steel bars | 100,208 | 46,223 |
| Bolts, nuts, rivets, etc. | 22,632 | 18,492 |
| Builders' hardware | 236,427 | 173,808 |
| Carwheels | 21,998 | 4,398 |
| Castings not elsewhere specified | 13,609 | 5,406 |
| Cutlery | 108,309 | 85,329 |
| Bath tubs and other enamel ware | 40,564 | 27,725 |
| Firearms | 587,933 | 362,647 |
| Hoop, band and scroll | 5,394 | 5,528 |
| Spikes, nails and tacks | 58,492 | 38,158 |
| Pipes and fittings | 374,455 | 144,135 |
| Steel rails, fish plates, etc. | 1,420,027 | 1,868,869 |
| Scales and balances | 58,317 | 32,994 |
| Iron sheets and plates | 162,562 | 69,535 |
| Steel sheets and plates | 17,793 | 53,006 |
| Stoves and ranges | 54,572 | 80,533 |
| Structural iron and steel | 467,922 | 163,641 |
| Tin plates | 217,139 | 67,549 |
| Tools | 937,701 | 541,005 |
| Wire, and manufactures | 868,850 | 696,029 |
| All other manufactures of iron and steel | 383,605 | 216,864 |
| Total | $6,170,083 | $4,719,297 |

The attention of the Bureau of Foreign and Domestic Commerce has recently been called to the exacting requirements of certain American exporting houses with regard to credits in Brazil. A circular of one American exporting house, for instance, announces that its total credits in each particular market will be limited to a certain amount without regard to the individual credit of clients. The suggestion is made by the Bureau officials that producers in this country can hardly hope to extend their Brazilian market if they attempt to shorten their credit lines at this time. It is pointed out that while American exporters are thus attempting to protect themselves European houses are taking advantage of the recently improved financial situation in Brazil, clearly reflected in the matter of collections, to extend their credits and especially to obtain large orders from individual customers whose resources have enabled them to weather the recent financial storm. At no time in many years, the Bureau officials assert, has it been so clearly demonstrated as at present that the chief problem in the matter of securing trade in South America, and especially Brazil, is that of handling the credit question with skill and diplomacy. W. L. C.

## New Bethlehem Coke Ovens in Operation

The first battery of 106 by-product coke ovens being built by the H. Koppers Company, Chicago, Ill., for the Lehigh Coke Company, South Bethlehem, Pa., started to produce coke January 28. A second battery of 106 ovens is now being heated preliminary to beginning the making of coke about February 15. The division of ovens now operating is turning out about 2000 net tons of coke per day, including both foundry and furnace. When entirely completed the plant will embrace four batteries of 106 ovens each, or 424 in all, which will have a total capacity of coking 6000 gross tons of coal per day.

As is well known, the ovens were contracted for March 10, 1914, to replace a German installation which proved unsatisfactory. Two sets of the old ovens, consisting of 75 ovens each, are in operation, but they are to be replaced. With the new ovens there has been erected, also, a new screening plant for separating the furnace and foundry coke and breeze. The old screening plant has been abandoned. Long term contracts which the Lehigh Coke Company has entered for its supply of coal are pointed to as an assurance of the future uniformity of its product. For many years to come it will be able to maintain the mixtures which have been found to produce the best results. Both steel works and foundries have given to E. M. McIlvain, president of the company, favorable reports of results they have attained with by-product coke.

A machine capable of drying and ironing per hour approximately 2000 blueprints, 8 x 13 in. in size, has been designed and built by James W. Townsend, who was connected with Levering & Garrigues for a number of years and is now located at 49 West Sixteenth street, New York City. The machine can also be used for photographs and similar work.

## Adjusting Tolerances for Bolts, Nuts, Screws and Taps

A conference looking to the settlement of the tolerances which should be allowed in the departure from exact standard size of bolts, nuts, screws and taps was held at the rooms of the American Society of Mechanical Engineers in New York City, on Friday morning, February 5. The meeting was held under the auspices of the Society's committee on tolerances in screw thread fits and was attended by leading representatives of the three interests involved, the tap makers, the bolt and screw manufacturers and the users of the products named.

The committee has been working for two years or more and the conference was called to consider screw thread fits for products ¼ to 2 in. in diameter. The meeting lasted over three hours and came to no definite conclusions, the plan being to devote the time to hear from all sides for the guidance of the committee in its further work. Besides comments made in person by those present, a considerable number of letters were read answering some questions which the committee had propounded as to such matters as what should be the allowable departure from the United States standard for, say, pitch diameter, root diameter, outside diameter, lead of thread and angle of thread. There was no unanimity as to whether or not there should be one limit of tolerance or whether or not there should be one set of tolerances for the rougher commercial work and another for the more exact work. Nor was there any definite sentiment developed as to whether or not the different limits should be made in the screw rather than in the tap, for either the high grade of screws or screws for rough work.

A sub-committee had prepared an elaborate set of charts with explanation to indicate what would be the effect of certain definite maximum and minimum tolerances. This committee was composed of F. O. Wells, president of Wells Brothers Company, Greenfield, Mass., Ellsworth Burdsall, secretary of Russell, Burdsall & Ward Bolt & Nut Company, Port Chester, N. Y., and A. A. Fuller, superintendent of the Providence Engineering Works, Providence, R. I., the three gentlemen representing the three interests to be considered in the settlement of the problem. The other members of the general committee include Luther D. Burlingame, chief draftsman, Brown & Sharpe Mfg. Company, Providence, chairman; F. G. Coburn, assistant naval constructor, U. S. N.; F. H. Colvin, American Machinist; James Hartness, president Jones & Lamson Machine Company, Springfield, Vt.; H. M. Leland, general manager Cadillac Motor Car Company, Detroit; W. R. Porter, S. S. White Dental Mfg. Company, Staten Island, N. Y., and W. F. Worthington, U. S. N.

Among those present at the conference were representatives from the Bureau of Standards and the Navy Department in Washington, the Michigan Bolt & Nut Works, Clark Bros. & Co., the Rhode Island Tool Company, the General Electric Company, the Westinghouse Electric & Mfg. Company, the Society of Automobile Engineers, the Chicago Screw Company, The Willys Overland Company, J. H. Williams & Co., and C. D. Young of the Pennsylvania Railroad, representing the American Railway Master Mechanics Association.

## Accounting and Scientific Management Meeting

Cost accounting and scientific management will be the general subject of the meeting of the Society to Promote the Science of Management, which will be held at New Haven, Conn., February 12 and 13. The tentative program for the meeting includes addresses on "Cost Accounting Theory and Practice," "Scientific Management as Applied to Public Service Properties, with Special Reference to Cost Statistics," by Charles Day, Philadelphia, and an outline of the scheme of accounting as developed by F. W. Taylor. Other features of the meeting are a visit to the plant of the Acme Wire Company, an informal smoker and a dinner at the Hotel Taft. The meeting proper will be held at the Mason Laboratory of Yale University.

## Book Reviews

**The Steel Foundry.** By John Howe Hall. Pages, ix + 271, 6½ x 9½ in. Cloth. Illustrations, 37. Published by the McGraw-Hill Book Company, New York. Price, $3 net.

Fewer books are written on the processes for making steel castings than probably any other branch of the steel industry. This is largely due to the fact that not many are competent to handle the subject and also that those who think they are have not had the "inspiration" to attempt it, which is fortunate in many respects. It is gratifying to greet a book in this field which is written by a man who is not only a technical engineer and metallurgist but who has had a wide experience in the steel foundry business, and whose papers and articles on the subject are familiar to foundrymen and metallurgists.

The volume embraces in general a discussion of the classes of steel castings in demand in the United States to-day; their characteristics from the point of view of their production; the various steel-making processes adapted to the foundry and their inherent features, such as relative cost of installation and quality of steel produced; molding, pouring and annealing. In the introductory chapter the author classifies steel foundries into the Tonnage Foundry, the Jobbing Foundry and the Specialty Foundry. The classification is a good one, but in including locomotive frames and driving wheels in the tonnage class, "where a great number of castings are made from relatively few patterns" (as bolsters, drawbars, etc.), an error has been made. Frames and wheels are strictly in the jobbing foundry class as well as locomotive castings in general. Most of the frames and wheels made in this country are made in acid open-hearth foundries, which are strictly of the jobbing nature.

The chapter (II) on "General Considerations Governing the Choice of a Method of Steel Making" will be very helpful to those contemplating entrance into the steel foundry business. It should be consulted by such and it might have been of considerable aid to those who have gone into the field, to their sorrow, if it had appeared much earlier. It is interesting to note that in quality of product Mr. Hall places the electric furnace first, and in the order of decreasing flexibility and size and intricacy second after the crucible. In the cost price of castings, the author arranges them in the following ascending order: Basic open-hearth, acid open-hearth, bottom-blown Bessemer, basic open-hearth in conjunction with the electric furnace, side-blown converters, electric furnace, gas crucible furnace (30 pot) and crucible furnace with coal holes or oil melting. The added estimates of cost of each process or medium are interesting though their accuracy will be challenged. Costs depend so largely on territorial conditions that the task of presenting a fair average is a difficult one, in which the author has well succeeded.

Chapters are devoted to each melting process, in which their history and details are discussed. It is to be regretted that in treating the acid open-hearth process the author does not discuss the relative merits of adding the ferromanganese to the ladle or to the bath. There is a divergence of opinion on this subject in the trade. Since the data on costs all mention putting the manganese alloy in the ladle it is possible the author considers this the best practice without question. The chapter on electric furnaces is thorough. Heat treatment and annealing have been allotted the space which the subjects deserve and are treated in an instructive and enlightening manner. In discussing welding the statement is found that "all castings in which large and important welds have been made should be reannealed after welding," and it will receive hearty approval by those who know.

The importance of the laboratory is strongly emphasized in a separate chapter. The space devoted to "building up impurities in steel," in which the formula of A. H. Jameson, as printed in *The Iron Age*, February 23, 1911, and August 21, 1913, is briefly explained, is interesting and original, especially the application of the theory in the chapter on "The Crucible Process."

The work is valuable to the man who contemplates entering the industry, to the man actively engaged in any one branch of the business and to the man seeking general information in foundry metallurgy.

**The Cementation of Iron and Steel.** By Dr. Federico Giolitti. Translated from the Italian by Dr. Joseph W. Richards and Dr. Charles A. Rouiller. Pages, XV + 407; 6½ x 9½ in. Cloth. Illustrations, 155. Published by McGraw-Hill Book Company, Inc., New York. Price, $4 net.

The appearance of Doctor Giolitti's work in Italian in 1912 was an epoch-making contribution to the literature of iron and steel, according to the translators. Professor Richards, of Lehigh University, became responsible for the metallurgical accuracy of the rendition and Professor Rouiller, of Johns Hopkins University, assumed the task of rendering most of the original into English. Doctor Giolitti is a professor in the Royal Polytechnic of Turin, Italy, and for a number of years his papers on cementation, characterized by industry and brilliant investigation, have presented the subject in a new light. The translators express regret that the author's commercial connections prevent him telling all he knows on several important questions, such as the carbonization of armor plate, yet he has made the industrial and scientific world his debtors by the vast amount of detailed information he has given on the scientific investigation and control of cementation processes.

"The cementation of iron or steel is, perhaps, of all metallurgical processes, that which today is still applied industrially with the greatest empiricism, and it may be asserted that what the English so effectively denote by the expression, 'rule of thumb,' is the only rule followed in the greater part of cementation establishments." This sentence from the author's preface states the situation accurately, but as the result the investigations of the last 10 years the processes have been now put on a sound scientific basis and the volume presents what has been done in this direction.

Part I of the book, 200 pages, discusses the Chemistry of Cementation Processes, taking up the first scientific investigations, studies on the process of cementation in the last 20 years of the nineteenth and the first seven years of the twentieth century, the most recent studies on cementation processes and finally the actual state of our present knowledge of the subject. This last chapter is particularly valuable and interesting. Part II, 200 pages, is practical, describing the industrial applications of cementation and case-hardening processes. This part deals with the total and partial cementation of wrought iron and soft steel, the chemical treatment of cemented products, the method of control of cementation and some patents covering cementation processes. The illustrations are copious, including numerous photomicrographs.

**Fuel: Gaseous, Liquid and Solid.** By J. H. Coste and E. R. Andrews. Pages, XVI + 278; 5¾ x 7¾ in.; Illustrations, 63; plates, 8; cloth. Published by J. B. Lippincott Company, Philadelphia. Price, $2, net.

This new work is regarded as a companion to an earlier one on "The Calorific Power of Gas," by the same English authors, both of whom are prominent chemists in the laboratory of the London County Council. The data are clothed with more than the theoretical information often contained in similar efforts because they are based on the experience gained in the authors' practical life. All the opinions expressed are put forth as original. They are numerous and free.

Apart from a short introductory chapter the book is divided into two parts. Part I deals with the chemical and general physical examination of fuels; Part II, over half the book, discusses calorimetry. The three chapters of the first part deal successively with the sampling and analysis of gaseous and liquid fuel and coal. Analytical methods, regarded as thoroughly modern, are given in detail for all the possible desired determinations, and the thoroughness of the treatment is striking. Considerable space is devoted to descriptions and discussions of gas-sampling apparatus.

A very important section is the one devoted to coking tests of coal in which the American and Pollard methods

are discussed. Subsequently the authors give their experiences with Lessing's method, brought out in May, 1912, stating that the results show the character of the resulting coke to better advantage than the American method of the American Chemical Society, previously regarded as the best. The photographic plates illustrating the advantage of Dr. Lessing's method over the American are excellent.

The scope of Part II, devoted to calorimetry, can best be conveyed by briefly describing the important chapters. Chapter V discusses the history and objects of calorimetry and calorimetric measurements; Chapter VI is on the calorimeter and its surroundings; chapters VII, VIII and IX, on the calorimetry of gaseous, liquid and solid fuels respectively. These various chapters contain much instructive material, especially the discussions of the various thermometers and the oxidizing mixture, low-pressure-oxygen and high-pressure-oxygen (bomb) calorimeters. Illustrations, descriptive of these, as well as the others in the book are highly helpful. The book is sent out as one of Griffin's Scientific Text Books, the London publisher being Charles Griffin & Co.

**Concrete Steel Construction:** Part I—Buildings. By Henry T. Eddy and C. A. P. Turner. Pages xvi + 438, 6 x 9 in.; generously illustrated. Published by the authors at Minneapolis, Minn. Price, $6.

This book is a treatise on the different systems of reinforced concrete construction employed in buildings. As is natural, the greater part of the work is devoted to a discussion of the mushroom type of construction invented by Mr. Turner. It would appear from a reading of the book that the authors' purpose was to demonstrate the economic superiority of the mushroom type of construction over other standard types.

The book is rather difficult reading, and it is not easy for even the professional man, unless he be a specialist on reinforced concrete, to make use of the information contained. Had the book contained more information as to the methods of working out designs and had it been clearer in its arrangement and in its language, it would have been more valuable.

A large share of the authors' efforts is devoted to showing that the accepted methods of designing floors and estimating stresses with the mushroom type of construction are incorrect, and that stresses are much lower and the strength of the structure much greater than the accepted methods of design would indicate. In demonstrating this proposition the authors give a comparative test of Norcross and mushroom slabs which shows the mushroom slab to be about five times as strong as the Norcross slab containing the same amount of material.

The beam strip theory which the authors reject would lead us to expect that the mushroom slab would be at least three times as strong as the Norcross slab, since the mushroom slab is, in this theory, considered to be a series of interlacing continuous beams, while the Norcross slab is a series of simple beams. The circumferential and radial reinforcement which is added in the mushroom system takes care of the increased bending movement over the tops of the columns. This test would seem to indicate that the mushroom system is approximately 60 per cent. stronger than the beam strip theory would indicate.

**Lötrohrprobierkunde** (Blowpipe Testing). By C. Krug. Pages, 79; 4¼ x 7¾ in., cloth. Published by Julius Springer, Berlin. Price, 3 marks.

With characteristic German thoroughness this little book delineates how easily, surely and quickly the important constituents of various minerals can be detected by blowpipe analysis. Both qualitative and quantitative tests are given, 41 pages being devoted to the former and 38 to the latter. The quantitative portion is especially interesting and important. Most of the elements are included and though the book is in German it is simple in style and highly valuable to chemists and mineralogists. Two plates illustrate various methods of using the blowpipe.

## Customs Decisions

### ROCK DRILLS AND BAR HOISTS

The United States Court of Customs Appeals, in deciding against Hensel, Bruckmann & Lorbacher, New York, has affirmed the action of the Board of General Appraisers in holding that rock drills and bar hoists, used chiefly in mining operations and fitted to use either compressed air or steam as the motive power, are not "steam engines" within the meaning of the tariff law. The collector classified the articles under the act of 1909 as manufactures of metal, and took duty at the rate of 45 per cent. under paragraph 199. The importers went to the Board of General Appraisers with the claim that the machines fall under paragraph 197, at 30 per cent., as "all steam engines." Presiding Judge Montgomery, in his decision for the court said the real question in the case is whether the articles in the condition as imported come within the meaning of the term "steam engines." He discussed the testimony and concluded as follows: "The attachment which is added to this machine and becomes a part of it as imported was designed for the purpose of adapting it to making it usable as, and only as, a compressed air machine, and only usable by applying compressed air, whereas to constitute it a steam engine a change in the appliance must be made, not only by adding an attachment, but by removing the attachment from the machine as it is imported and substituting another, something which we have no reason to expect will occur or was ever contemplated by the importer or any one dealing with such articles."

### WIRE RODS

In overruling a protest by the Swedish Iron & Steel Corporation, New York, the Board of United States General Appraisers has made an attempt to decide the classification under the present tariff law of iron and steel wire rods used in making chains, rivets, pins, and to a limited extent in wire drawing. The merchandise imported was invoiced as "round iron in coils" and assessed with duty at 10 per cent. under paragraph 113. The importer claimed a rate of 5 per cent. under that part of paragraph 103 specifying "round iron in coils or rods, bars or shapes of rolled or hammered iron not specially provided for in this section." The Swedish Iron & Steel Corporation contended that the provision in paragraph 113 under which duty was taken is intended to cover only iron or steel wire rods which, as imported, are "ready to be drawn or rolled into wire or strips," and brought forward a witness who testified that he had no knowledge of any of the merchandise being used for wire drawing and that none of it was ever sent out by the firm for that purpose. Judge Fischer, in finding against the contention of the importer, reviews the question of classification of this line of imports, and the changes made in the present law, at considerable length in anticipation apparently of extended litigation over the paragraphs involved in the initial suit. He says in part:

> In enacting paragraph 113, Congress clearly intended to cover all iron or steel wire rods, and to that end made use of the clearest and most explicit language which would express that intent. Certainly the words "and other iron or steel wire rods, whether round, oval, or square, or in any other shape," immediately following several different and specific enumerations are so extremely comprehensive in character and scope as to embrace any and all articles composed of iron or steel which may be commercially known under the name of "wire rods," irrespective of the use or uses to which the same may be employed. Hence when one of the importer's witnesses testifies that the merchandise in question consists of wire rods composed of iron, its dutiable classification as such is in no way affected if another witness states that until it is first pickled and limed said merchandise is not suitable to be drawn into wire.

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The Mines Branch, Dr. Eugene Haanel, director, of the Canadian Department of Mines, has issued the following pamphlets: "The Production of Copper, Gold, Lead, Nickel, Silver, Zinc and Other Metals in Canada in 1913" by Cosmo T. Cartwright; "A General Summary of the Mineral Production of Canada in 1913" by John McLeish; and a "Report on the Building and Ornamental Stones in Canada," Volume III, Province of Quebec, by Dr. William A. Parks.

## OBITUARY

JOHN QUINN, efficiency engineer of the Carnegie Steel Company's Mingo steel works and furnaces, Mingo Junction, Ohio, died suddenly January 30, aged 65 years. He was born in Ireland, coming to this country at the age of 20. He was first engaged in a printing office in Cleveland, then in the service of the Cleveland Rolling Mill Company, now the American Steel & Wire Company, going to Mingo Junction, in 1882, as chief engineer of the Junction Iron Company. On the consolidation of the Laughlin Steel Company and the Junction Iron Company in 1884 he was made master mechanic, holding this position through the various changes made in the company until 1911, when he was made efficiency engineer. He was actively interested in the religious, charitable, educational, industrial and financial life of the community, being president of the Board of Education and president of the First National Bank of Mingo Junction. He leaves his widow, two sons and four daughters. One son is master mechanic and the other son assistant master mechanic of the Mingo works.

NORMAN B. REAM, of New York City, died February 9 in a local hospital, following an operation for the removal of gall stones, aged 70 years. He was a native of Somerset County, Pennsylvania, and his career covered an experience as farm boy, school teacher, professional photographer, soldier, clerk in a country store, country merchant in Iowa, Chicago grain and provision commission man and prominent capitalist. He served in the army in the civil war until incapacitated for further duty in 1864 by severe wounds. For many years he was a leading factor in operations on the Chicago Board of Trade. He was one of the organizers of the United States Steel Corporation and a director up to the time of his death. He was a director in over 20 other corporations, comprising railroads, banks, trust companies and manufacturing concerns. He leaves his widow, four sons and two daughters.

JOHN MCLAUCHLAN, a veteran member of the Chicago iron trade, died January 27 at his residence in Ravenswood, a Chicago suburb, after a week's illness from pneumonia, aged 73 years. He began his connection with the iron business in Cleveland, Ohio. Removing to Chicago, he for many years represented the Andrews Brothers Company, Youngstown, in the sale of pig iron and bar iron. When that company was merged into the Republic Iron & Steel Company, Mr. McLauchlan entered the auditor's department as chief clerk and held that position for a considerable time. Since then he had been acting as a manufacturer's agent, representing makers of bar iron, horseshoes, etc. He was a man of sterling qualities and high ideals and had a strong literary bent. Contributions from his pen appeared from time to time in the columns of *The Iron Age*. He leaves his widow and several daughters.

LEROY ARTHUR GLEASON, pioneer nut and bolt maker of Cleveland, Ohio, died February 7, after six months' illness, aged 79 years. He was born in South Manchester, Conn., and went to Cleveland in 1869 to take charge of the building of the plant of the Cleveland Nut & Bolt Company, organized by Thomas and Isaac Lamson and Samuel Sessions. He was superintendent of this plant and later superintendent of the Lamson & Sessions Company's plant and for a number of years superintendent of the bolt department of the Upson Nut Company. When the latter company was taken over by the Bourne-Fuller Company, three years ago, he retired. He leaves two sons, one of whom, Edwin L. Gleason, is connected with the Bourne-Fuller Company.

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The Warren Tool & Forge Company, Warren, Ohio, has recently taken some desirable orders from the European belligerents, these including picks, mattocks and hoes used in trench work.

## EXAMINATIONS OF EMPLOYEES

### Meeting in Pittsburgh of the Association of Iron and Steel Electrical Engineers

The regular monthly meeting of the Association of Iron & Steel Electrical Engineers was held at the Seventh Avenue Hotel, Pittsburgh, Saturday, February 6. Stewart C. Coey, assistant superintendent of the mechanical and electrical departments of the Youngstown Sheet & Tube Company, read a paper on "The Relation of the Physical Examination to Electrical Work." Mr. Coey mentioned the desirability of examining the eyes of employees periodically to determine what effect artificial illumination is having upon the eye. He stated that any illuminant, having an intrinsic brilliancy of more than 6 candlepower per square inch, is detrimental to the eye when in the range of vision, and that all present-day lighting units except the Moore tube and the carbon filament lamp with a frosted globe have a brilliancy greater than 6 cp. per sq. in., nitrogen gas filled Mazda lamps having an intrinsic brilliancy of 4000 cp. per sq. in.

Dr. Sidney M. McCurdy, resident surgeon of the Youngstown Sheet & Tube Company, outlined its policy of physical examination and emphasized the advantages from the humane and economical standpoint. He believed that physical examination by the industrial companies would accomplish far more results than any organization such as the anti-tuberculosis league, in that physical examination of the employees would result in a campaign of prevention.

Dr. William O'Neil Sherman, chief surgeon of the Carnegie Steel Company, referred to the antagonism shown by labor organizations toward physical examination, and stated that he believed that this antagonism is the result of misunderstanding on the part of labor organizations. He believed it far better to detect a case of contagious or infectious disease in its incipiency and cure it than expose other healthy workmen to its ravages, and that it was well to know that a man has only one good eye so that he is is not placed in an occupation that will injure the other.

Among others who took part in the discussion were Dr. C. D. Selby, Toledo; Dr. Edward Konrad, Cleveland; J. H. Woltz, E. Friedlaender, J. B. Ayers, J. S. Junkin and William Oschmann.

The Association of Iron & Steel Electrical Engineers is in a very flourishing condition, having a total membership of 310. Seven members were elected at the Pittsburgh meeting, at which 60 members and guests were present.

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The French Government has ordered 7 locomotives from the Baldwin Locomotive Works, and the Louisiana Railway & Navigation Company 3 ten-wheel engines from the same company. The Lima Locomotive Corporation has secured orders for 3 Mikado type locomotives from the Grand Rapids & Indiana and also 25 Mikado type from the Illinois Central. This latter order is in addition to 25 similar engines ordered by the same railroad recently and also supplements an order for 25 switching locomotives placed with the American Locomotive Company early in January. The Chicago, Burlington & Quincy is reported in the market for 30 to 35 freight and 15 passenger locomotives.

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At Philadelphia, February 3, the Circuit Court of Appeals affirmed the judgment of the Western District Court in the suit of the Coal & Coke By-products Company versus Roessing Ernst Company, Alfred Ernst and the Best Mfg. Company, in which a decree of infringement of letters patent for a gas cleaner apparatus was entered against the defendants. The Coal & Coke By-products Company's office is at 421 Wood st., Pittsburgh, Pa.

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The stainless non-rusting steel described in *The Iron Age* of February 4, 1915, is manufactured by Thomas Firth & Sons, Ltd., Sheffield, England. It was wrongly reported as "Tirth's" stainless steel in Commerce Reports, but is advertised as "Firth's."

# PERSONAL

W. F. Rust has resigned as general superintendent of the Otis Steel Company, Cleveland, Ohio, effective March 1, when he will become chief engineer of the H. Koppers Company, Chicago, succeeding Allan Strale, resigned. Mr. Rust was formerly chief engineer of the Youngstown Sheet & Tube Company. The position he holds with the Otis Steel Company will not be filled for the present, owing to the fact that the Riverside plant of that company is shut down. Mr. Strale will take a short vacation on his farm in Mississippi and later will probably open an office in Chicago as consulting engineer.

Walter C. Fish, manager of the Lynn works of the General Electric Company, is to address a meeting to be held under the auspices of the American Society of Mechanical Engineers at Boston, February 26, on industrial education.

D. Fairfax Bush and William Dette, of Crocker Brothers, New York, dealers in ferroalloys, pig iron and coke, returned Saturday from a three-weeks' trip to the Pacific coast.

William H. Barr, president National Founders' Association, was referred to in last week's issue of *The Iron Age* as being a resident of Pittsburgh. He is president of the Lumen Bearing Company, Buffalo, N. Y.

F. G. Baldwin, who formerly traveled through the South for the American Rolling Mill Company, Middletown, Ohio, has been transferred to Cincinnati. He will have charge of the department handling forgings, steel castings and other Armco specialties, with offices at 515 Mercantile Library Building. C. C. Lynd, formerly in the Middletown office, will take Mr. Baldwin's place as traveling salesman in the Southern territory.

F. A. Weaver, who has been salesman and contracting engineer for the Ayer & Lord Tie Company, Chicago, for five years, and who has resigned the management of the company's Cleveland office, effective February 15, will open a contracting office in Cleveland March 1 and will devote his attention to the installation of factory floors of all types.

C. E. Sheldon retired as president of the Whitman & Barnes Mfg. Co., Akron, Ohio, at the recent annual election and was succeeded by A. B. Rinehart, who has been first vice-president. Mr. Sheldon will retain official connection with the company as chairman of the board of directors. Mr. Rinehart was succeeded as first vice-president by A. D. Armitage, who will combine with his office his former duties as general manager. Mr. Sheldon has been connected with the company 47 years, and had been president since 1902. Mr. Rinehart has been connected with the company since 1893, when he became advertising manager, and afterward was made sales manager and later a director. Other officers elected were A. G. Hall, second vice-president; W. H. Eager, treasurer; E. A. Fisher, assistant treasurer; W. E. Rowell, secretary.

A. S. Baldwin, manager of the Best Mfg. Company, Oakmont, Pa., has resigned, to take effect not later than April 1. As announced in the last issue of *The Iron Age*, this company has recently been absorbed by the Kennedy-Stroh Corporation, which has its complete organization. Mr. Baldwin was for two years superintendent of the American & British Mfg. Company, Bridgeport, Conn; for over four years general superintendent of the Driggs-Seabury Ordnance Corporation, Sharon, Pa., and for three years general manager of the Alberger Pump & Condenser Company, Newburgh, N. Y.

Charles McKnight, president of the Carbon Steel Company and of the Western National Bank of Pittsburgh, arrived in New York, February 4, after a short business trip abroad. He would not discuss contracts.

Clifton Reeves, president and general manager of the Reeves-Cubberley Engine Company, Trenton, N. J., has been appointed a member of the Federal Board of Arbitration by Secretary Wilson of the Department of Labor. For 10 years Mr. Reeves was secretary of the Employers' Association of Trenton, and in that time assisted in the adjustment of a number of important labor differences. He has resigned his position with that association, but will continue to be connected with the engine company, of which he is the head.

John K. Henry, formerly with the Brown & Zortman Machinery Company, Pittsburgh, will represent the Laughlin-Barney Machinery Company, with office at 1901 Union Bank Building, Pittsburgh.

W. H. Arkenburgh, publicity manager of the Union Switch & Signal Company, has resigned and joined the sales department of the National Carbon Company, Cleveland, Ohio, having charge of railroad and signal work in Canadian territory.

John H. Hart, for five years manager of the Youngstown plant of the Concrete Steel Company, has been transferred to its plant at Camden, N. J. He has been succeeded at Youngstown by J. F. Curley.

A. Fred Bertram has been appointed special representative for the Steel Improvement Company, Cleveland, for the Pittsburgh district and Youngstown.

F. W. Ochsenhirt, Jr., purchasing agent for the Jones & Laughlin Steel Company, Pittsburgh, is now in charge of the purchase of old material for that company, formerly in charge of Robert Geddis, assistant general sales manager in charge of the hot rolled department. F. W. Wulftange, formerly identified with the Riter-Conley Mfg. Company, Pittsburgh, is now connected with the purchasing department of the Jones & Laughlin Company.

Wong Kwong, a representative of the Yangtsi Engineering Works, Hankow, China, was in Pittsburgh last week and placed considerable orders for machinery of different kinds for shipment to China.

H. C. Wolf has been appointed purchasing agent for the Fuller & Johnson Mfg. Company, Madison, Wis., succeeding Mr. Noe, who died recently.

Changes among officials of the Westinghouse Electric & Mfg. Company, East Pittsburgh, are as follows: H. H. Seabrook, manager of the Baltimore district office to become manager of the Philadelphia district office. John J. Gibson, manager of the Philadelphia district office, to be manager of the detail and supply department, with headquarters at East Pittsburgh. W. P. Cochran, manager of the industrial power department, Baltimore office, to be manager of Baltimore branch office. H. W. Cope, assistant manager, industrial and power department, with headquarters at East Pittsburgh, to become director of the Westinghouse exhibit at the Panama-Pacific Exposition. Carl J. Fechheimer, for nearly five years in charge of the design of alternating-current machinery for the Crocker-Wheeler Company, becomes attached to the power engineering department of the Westinghouse Company, with headquarters at East Pittsburgh.

Reorganization of the C. Heinz Stove Company, St. Louis, organized in 1860, has been effected with Adolph E. Ameiss as president; Morris Klemme, vice-president; Charles O. Kehner, secretary, and G. D. Klemme with the officers as a board of directors. T. F. W. Zimmerman, Jr., and M. S. Kalbfleisch have sold their stock and retired from the company.

W. A. Locke, who retired February 1 from the presidency of the American Manganese Bronze Company, is now associated with the Taunton-New Bedford Copper Company, 42 Water street, New York, which is one of the oldest in the United States. Its mills are located at Taunton and New Bedford, Mass.

C. C. Hanch, treasurer of the Nordyke & Marmon Company, manufacturer of automobiles and flour milling machinery, Indianapolis, has resigned to accept an important post in the executive organization of the Studebaker Corporation, South Bend, Ind. He has been prominently identified with the civic bodies of Indianapolis and with the Indiana Manufacturers' Association, the National Association of Manufacturers, the National Automobile Chamber of Commerce and similar organizations.

## Pittsburgh and Nearby Districts

The Pennsylvania Tank Car Company, Sharon, Pa., has received an order for 100 tank cars for shipment to the Oklahoma oil fields. Having other orders for a considerable number of such cars, it is now filled up to May 1, at its present rate of output of six complete cars per day. The strong demand for tank cars is due to the heavy oil production in Western fields together with cotton-seed oil and molasses requirements.

On February 4, 1895, or 20 years ago, the first Bessemer steel made in the Mahoning Valley was turned out in a 10-ton converter at the plant of the Ohio Steel Company at Youngstown. This plant was built by Henry Wick, J. G. Butler, Jr., and other local capitalists and Thomas McDonald was general manager. At first this steel plant had no blast furnaces, but later two were built. Henry Wick was president of the company. In a few years the plant was sold to the National Steel Company and afterward was taken over and is now being operated by the Carnegie Steel Company, Pittsburgh, and is known as its Ohio works. It has been greatly enlarged since. An open-hearth works with 12 furnaces was added some years ago and there are now six blast furnaces in connection with the plant, with a daily capacity of 3000 tons of pig iron.

The Wm. B. Scaife & Sons Company, Pittsburgh, has secured a contract from the Pittsburgh-Buffalo Company for the structural steel work required in connection with new conveying machinery it is installing. The contract includes a steel frame runway.

The Logan-Gregg Hardware Company, Pittsburgh, whose warehouse and offices on Seventh street were burned last summer, has bought a plot on Ninth street, 100 x 116 ft., on which it will erect a building specially designed for the jobbing hardware business. The building will be eight stories, structural steel and brick construction, and as nearly fireproof as possible. About 1000 tons of structural steel will be needed, bids on which will soon be asked. The company is now occupying a building at Sandusky and Ohio streets, North Side, Pittsburgh, but expects to have its new building ready for occupancy next fall.

The Pennsylvania Railroad Company has instructed its shops at Altoona, Pa., to build 68 all-steel passenger and baggage cars.

Receivers for the Tower Hill-Connellsville Coke Company have asked permission of the court to do what may be needed about the coke plant to enable them to fill a large contract for furnace coke for the Youngstown Sheet & Tube Company. The receivers state that this contract amounts to 16,000 tons per month, running over all of 1915. The price named is $1.75 per net ton at oven, which, it is claimed, will permit the operation of the plant at a profit.

Hannah furnace of the Republic Iron & Steel Company, at Youngstown, Ohio, was blown in on Tuesday, February 9, on Bessemer iron. All four stacks of the company at Youngstown are in blast.

The committees appointed by the LaBelle Iron Works and the Wheeling Steel & Iron Company, looking to a merger of these two companies, are making investigations. Reports will be presented to the stockholders, showing values of the properties of the two interests.

Printed reports that the Republic Iron & Steel Company, Youngstown, Ohio, has made a general reduction in wages in its tube mills are incorrect. The company, it is stated, changed certain rates of bonus and piece workers, due to adding improved machinery. The only department affected was the threading floor of the tube mills.

The New Castle Rubber Company, New Castle, Pa., recently incorporated to manufacture automobile tires and inner tubes, is occupying a part of the plant formerly operated by the New Castle Forge & Bolt Company, but does not contemplate building any additions in the near future, at least.

Stockholders of the Sharon Steel Hoop Company met at Sharon, Pa., last week and elected Harry Gilbert, of Chicago, a director to succeed Fred W. Koehler, who disposed of his holdings in the company some time ago. The other directors are: George W. Short, Severn P. Ker, James P. Whitla, Fred Perkins, Pittsburgh; J. Reid Evans and W. G. Evans.

Reports that the Youngstown Sheet & Tube Company, Youngstown, Ohio, has made a general reduction in wages are incorrect. In 1914 it put in new and improved threading machines in its plant. The company found that on some sizes of pipe it was obliged to raise prices paid for labor and to reduce it on others. In its wire-drawing department the company put in some new drawing blocks and some readjustments were made in that department, the company paying more for some gauges of wire and less for others. The greatest reduction made amounted to 9 per cent., but the average reduction was not that large as prices paid for some gauges were advanced. It also reduced sheet mill rollers, heaters and helpers about 14 per cent. from the prices formerly paid, but these prices were higher than the Amalgamated Association rates, and as this organization has just accepted a reduction of 12 per cent., the scale of wages in the sheet mills of the Youngstown Sheet & Tube Company, which does not sign any wage scales, will be about the same as the Amalgamated rate. These adjustments in wages affect about 5 per cent. of the employees, and all these are working on a tonnage basis. The company is now operating two of its four blast furnaces, but expects to blow in another about February 15.

### New Steel Tubing Plant

The Elyria Iron & Steel Company, Elyria, Ohio, will shortly begin the erection of a large plant in Cleveland for the manufacture of high-grade steel tubing. The company has closed a deal for a large site at East 131st street and the Belt Line Railroad and expects to start construction work in a few weeks on a factory building, 100 x 400 ft. It is expected that additional units will be erected later. The company will make polished steel tubing in light gauges, the greater part of its products to be oxy-acetylene welded. At the start tubing will be made in sizes of ½ in. to 4 in. The plans for the plant are being designed by Ernest McGeorge, designing and consulting engineer, Rockefeller Building, Cleveland. The company, in its Elyria plant, makes railroad tie plates and spikes, steel tubing, agricultural implement shapes and other products.

### Rapid Construction of a New Universal Mill

The United Steel Company, Canton, Ohio, furnishes the following record for the installation of its new universal mill:

On January 1 the last ingots were rolled on the old mill, which weighed 600 tons. This was dismantled, and the concrete foundations, about 1200 cu. yd., were taken out entirely. New foundations for the new universal mill and tables were put in, involving 2200 cu. yd. of concrete. The new mill and tables weighing 1600 tons were then erected. Changes to the engine involved a new crank shaft and cylinders 4 in. larger. The new mill started to roll ingots February 8, or just five weeks from the time ingots were rolled on the old mill. This is considered a splendid record for rapid construction and installation.

### Wage Reduction at Reading

The Reading Iron Company, Reading, Pa., announces that the puddlers, helpers and mill hands have decided to vote to remain at work at the reduced figure of 50c. per ton on puddling, effective February 8. The men have agreed to accept the company's proposition with the understanding that as soon as conditions in the iron trade warrant wages are to go back to the $5 per ton basis.

The Chattanooga Manufacturers' Association, Chattanooga, Tenn., has issued a 1915 directory covering local manufactures. The association has 120 members, producing 696 commodities. Capital invested in their plants is $32,491,000, while 10,765 people are employed, the annual payrolls aggregating $6,387,497. The value of the annual output is placed at $41,878,000.

# Machinery Markets and News of the Works

Some exceptionally large orders have been placed as a result of the demands of the war and there is evidence that this activity is spreading out to lines not at first affected, as where automobile truck manufacturers have bought equipment so that they can make the prompt deliveries of their products which are required abroad. Makers of arms and shrapnel have bought large quantities of machine tools and the producers of the latter have in turn bought to enlarge their facilities. Business of the class referred to is on the increase in New England, where it is estimated that orders amounting to at least $1,000,000 have been placed in the week. Through New York houses or branch offices some big orders have been placed for turret lathes, milling machines, etc., and interest is better from industries in general. In Detroit many sales are reported, and a good volume of inquiry is coming from varied sources, while the foundries are doing better. Chicago dealers are shipping tools to Canada and Europe and business of this kind in February was in excess of that of the same month in 1914. The automobile trade and machine tool builders have made noteworthy purchases in Cleveland, and on the whole a marked improvement in demand is seen. Milwaukee observes that the automobile truck business is increasing its export shipments. In Cincinnati there is an improved demand for planers, a type of machine which has suffered of late, and the automobile truck makers are more active in buying. Building operations are opening up in the Central South and prospects generally look brighter. Birmingham notes more interest in machinery. The call in St. Louis is mostly for single tools, but the aggregate of sales is more satisfactory. Conditions in Texas are quiet. Demand is developing slowly in San Francisco, but it is on the up-grade.

## New York

NEW YORK, February 9, 1915.

While the big feature of this market, and it is indeed a big feature, is the continued purchasing of machine tools to supply demand created by the war, there is indisputable evidence of a betterment in sales to domestic manufacturers who serve the arts of peace rather than those of war. The improvement is not great, it is true, but it does exist. A seller of power transmission chain reports that his business is considerably improved. Manufacturers of hydraulic equipment in the East are busy, the plant of the Watson-Stillman Company, Aldene, N. J., for instance, being filled with work, largely consisting of tunnel-shield mechanism, pumps, accumulators and presses. Some buying has been done by the Sperry Gyroscope Company, Brooklyn, N. Y., and the New Process Gear Corporation, Syracuse, N. Y. The Victor Talking Machine Company, Camden, N. J., has inquired for a locomotive crane for handling coal and the Bethlehem Steel Company will buy a number of cranes in addition to four recently purchased. A railroad in the East is inquiring for a couple of machines, ordinarily a minor proposition, but unusually pleasing at this time. Practically all of the shipyards on the Atlantic coast are filled with work.

Large orders have been placed by the Remington Arms Company for its new plant at Bridgeport, Conn. Sellers in this city, as well as in Boston and elsewhere received orders, one of which embraced practically 300 Cincinnati milling machines. Another large order was received by the Gisholt Machine Company for about 90 turret lathes, the purchaser being the Traylor Engineering Company, Allentown, Pa., a representative of which returned from Europe, February 2, with a large order for explosive shells. Other machines have been purchased by this company. None of the parties directly concerned will discuss this business. The E. W. Bliss Company, Brooklyn, has been in the market again and has bought a number of tools, including some of the New Britain Machine Company's automatic chucking machines, several Jones & Lamson and Warner & Swasey turret lathes and Norton grinders.

Reports are current again that the Canadians are seeking to place contracts here for the machining of shrapnel cases. In Canada nearly 100 concerns are reported as busy on this class of work, the price paid being about $3.25 per piece, the blank being supplied by the government. Heretofore a higher price was paid. An airbrake manufacturer was recently inquiring for a number of grinding machines for shrapnel work, but allowed the option held to lapse.

Some new foreign buyers are in this country in connection with machine tools for export. One is L. S. Neuschul, who is at the Hotel McAlpin. He represents P. P. M. Mett & Co., Petrograd, Russia. Also at the McAlpin is J. L. Litton, of Litton's Machine Tool Company, London, England, who is interested in modern machine tools of every description. Mr. Litton is now on a business trip which is to include several cities, but he may be addressed at the McAlpin.

J. P. Morgan & Co., bankers, Broad and Wall streets, New York, have announced the selection of Edward R. Stettinius, president of the Diamond Match Company, to take charge of a newly created purchasing department of the firm which was recently designated as the fiscal or commercial agent of Great Britain in this country. Mr. Stettinius, who was once connected with the Stirling Boiler Company, has taken a three months leave of absence from the Diamond Match Company. It is understood that the Morgan firm will have charge of all purchases of war materials for the British Government, with the exception of horses and mules.

The Simons Mfg. Company, Portchester, N. Y., is having plans prepared for a three-story addition to its main factory, and for an additional one story to an adjoining building, at a total cost of about $20,000. R. G. Cory, 39 Cortlandt street, New York, is consulting engineer.

The Augustine Rotary Engine Company, Buffalo, is negotiating for the purchase of the Defiance Iron Works Company's plant at Chatham, Ont.

The Soapitor Company, Oswego, N. Y., has been incorporated with a capital stock of $450,000 to manufacture soaps, toilet preparations, etc., and will establish a manufacturing plant. Alfred Baer, Sr., Alfred Baer, Jr., and R. N. Kenyon, New York City, are the incorporators.

The Board of Contract & Supply, Albany, N. Y., has retained Henry & Gregory, consulting engineers, New York City, to prepare plans for an electrically-operated sewage pumping station to be constructed in connection with the Albany sewage disposal works.

The Canandaigua Pneumatic Seal Company, Canandaigua, N. Y., has been incorporated with a capitalization of $75,000 to manufacture bottle caps and closures for bottles. E. F. Case, I. Joffe and F. R. Burgess, Rochester, N. Y., are the directors.

Plans have been completed for a two-story factory for the manufacture of last blocks, to be erected at Ellicottville, N. Y., by Fitzpatrick & Weller. W. D. Walrath is president.

The Poughkeepsie Concrete Stone Company, Poughkeepsie, N. Y., has been incorporated by H. B. Vosburgh, C. M. Lloyd and E. D. Holden, with a capital stock of $10,000 to manufacture concrete blocks and artificial stone.

W. N. Clark & Co., Rochester, N. Y., have let contract for an addition, 84 x 207 ft., two stories, to be made to its canning factory at Norton & Hollenbeck streets.

A charter of incorporation has been issued to the Shaughnessy Iron Ore Corporation, Albany, N. Y. T. F. Shaughnessy, 781 Myrtle avenue, Albany; J. F. Hogan and J. J. McCall are the incorporators. The capital stock is $15,000.

The Jamestown Period Furniture Company, Jamestown, N. Y., has been incorporated to do a general furniture manufacturing business.

Bids are being taken on revised plans for factory addition, 52 x 90 ft., two stories, to be erected by the H. E. Hessler Company, 512 North Salina street, Syracuse, N. Y.

The Hodgman Rubber Company, 806 Broadway, New York City, is having plans prepared for a factory and office building, 50 x 150 ft., four stories and basement, to be erected at Tuckahoe, N. Y.

The Benford Mfg. Company, Mt. Vernon, N. Y., is having revised plans prepared for a two-story factory, 40 x 110 ft., for the manufacture of spark plugs, etc., which it will erect on Pearl street.

The Braman Mfg. Company, West Carthage, N. Y., has been incorporated, with a capital stock of $60,000, by F. P. Phillips, M. E. and O. H. Braman. It will take over the business of O. H. Braman, manufacturer of brush blocks.

## New England

BOSTON, MASS., February 9, 1915.

The past week has proved conclusively that the demand for machinery to be used in the manufacture of war materials is by no means ended. From the recent experience of New England builders, especially the makers of machinery suitable for producing shrapnel shells, the buying from now on will be limited only by the available supplies. The shops are increasing production as rapidly as possible. Some of the orders are really enormous, as machine tool business goes. The total business booked in the last week in New England alone runs well above $1,000,000. The total since January 1 is far above this figure.

This business is divided between orders for shipment to Europe, particularly to England and France, and orders from customers in the United States and Canada. The warring nations are apparently coming to the conclusion that it is fully as wise to depend upon American manufacturers for their finished product, in the way of war stores, as to import the materials and machinery and do the manufacturing for themselves. The shrapnel shell leaves the American factories in a more or less complete condition for use—except the powder charge. The brass powder case, with its explosive, is added later.

To illustrate present conditions with companies building these types of machines, the Reed-Prentice Company, Worcester, Mass., is employing more than 1000 men, of whom 800 are in the day shift, while 200 constitute the nucleus of the night shift, which is being increased as rapidly as is consistent with building up an efficient organization. Recent orders include large lots of the new automatic lathes originally designed for the Ford Motor Company and afterward made a standard product. The type has adapted itself perfectly to the requirements of shrapnel manufacture. As a means of comparison it may be stated that in 1907, the last high mark with these works, the total employees of the F. E. Reed Company and the Prentice Bros. Company, including the Reed foundry, now units of the Reed-Prentice Company, was only 900.

The Norton Grinding Company, Worcester, has received very large orders in the week, and its large shops are running to the capacity of their organization, which is increasing in number of men rapidly. The Windsor Machine Company, Windsor, Vt., is put to it to secure living quarters for its men. These are only instances which tell of the activities of machine shops which produce engine lathes, standard and semi-standard; cylindrical grinding machines, the automatics in their various sizes, especially in the larger, and so on through the list of more highly special equipment. The builders of some other types of machine tools are not prospering to the same degree, excepting as their products enter into the manufacture of such war materials as guns, and of arsenal equipment. Drilling machines are used in a limited degree in the making of shrapnel. Then, of course, the manufacture of small arms ammunition, shrapnel bullets, smokeless powder and other materials requires machinery, much of it highly special, and this, too, is having a ready market.

The drop forging people continue to report improving business, and some of the pressed metal companies which handle the larger sizes of work are profiting by war business.

Outside of war orders general business continues to show improvement. The change is not great, but it appears to be quite consistent. Business as compared with the corresponding period of 1914 is favorable. Naturally there are exceptions, but the average is by no means discouraging.

The Baird Machine Company, Bridgeport, Conn., manufacturer of presses, wire and metal forming machines, tumbling barrels and other types of machinery, has awarded the contract for an addition, 42 x 102 ft., of steel and sheet iron.

The Harvey Hubbell Company, Bridgeport, Conn., manufacturer of electrical specialties and machinery, will erect an additional factory building, 90 x 320 ft., one story, with sawtooth roof.

The latest addition announced for the Winchester Repeating Arms Company, New Haven, Conn., which is making very large additions to its plant, will be 54 x 145 ft., five stories, of reinforced concrete.

The Howe Scale Company, Rutland, Vt., has awarded the contract for a foundry building, 120 x 288 ft., of brick and steel.

The factory at Leicester, Mass., occupied by the Watson Mfg. Company and the Gibbs Heddle Company, manufacturers of textile machinery, was destroyed by fire, February 3, together with a large amount of machine tool equipment and other machinery. The total loss is $100,000, which is covered by insurance.

The Mysto Mfg. Company, New Haven, Conn., manufacturer of toys, is receiving bids for the new factory which will be erected in Fairhaven. The structure will be 62 x 160 ft., two stories.

The Dupaul-Lockhardt Company has been organized at Southbridge, Mass., to manufacture optical goods, and will build a factory in the early spring. George H. Dupaul and William A. Lockhardt are the prime movers in the enterprise. A building has been rented in which the special machinery required in the business will be built.

The Farr Alpaca Company, Holyoke, Mass., will erect two additional buildings, one 73 x 101 ft., one story, which will be a dyehouse, the other one story, 73 x 99 ft., which will be occupied as a press room.

## Philadelphia

PHILADELPHIA, PA., February 8, 1915.

The John A. Roebling's Sons Company, manufacturer of wire rope, etc., Trenton, N. J., whose plant was recently destroyed by fire, will probably rebuild on the same site. Details as to the plans have not yet been formulated.

A. F. Bornot & Bro., Seventeenth street and Fairmount avenue, Philadelphia, Pa., will receive bids in about two weeks for a three-story brick addition to their factory, 50 x 55 ft. Werner Trumbauer, Crozier Building, Philadelphia, is the architect.

The Baily Mfg. Company, Center street and the Northern Central Railroad, York, Pa., has about completed a factory at North Wales, Pa., 50 x 100 ft., and will erect another when the cold weather is passed. Upon the completion of these buildings, it will move all its work to the new plant which will be devoted entirely to the building of automobile bodies.

The Lehigh & New England Railroad, 437 Chestnut street, Philadelphia, has awarded the contract for its shops to be erected at Pen Argyl, Pa., to F. D. Hyde, 90 West street, New York City. The estimated cost will be about $100,000. Plans call for a main shop, 160 x 260 ft., executive building, storehouse, and other smaller structures.

Kennett Square, Pa., has voted $4200 for a new pump, boiler and other water plant fixtures.

The Keystone Leather Company, Camden, N. J., has awarded the contract for the construction of a four-story addition to its factory, 66 x 224 ft., of brick, steel and concrete construction. William Steele & Sons Company, 1600 Arch street, Philadelphia, Pa., is the contractor.

Ventnor City, N. J., will receive bids until 8 p. m., February 15, for installing a pump and building a disposal plant, etc. The president of the City Council is in charge.

## Chicago

CHICAGO, ILL., February 8, 1915.

In reckoning up the aggregate machine-tool business created in this territory both directly and indirectly by the war demands from Europe, the prospect for February reveals shipping orders in the hands of local interests comfortably in excess of orders for February shipment a year ago. Two or three manufacturers of milling machines in this district have taken orders for such tools as they can deliver very promptly. A Chicago dealer is shipping two carloads of machinery for a Canadian rifle manufacturing plant. In other directions orders arising from local needs are scattering and negotiations leading up to the placing of business are long drawn out.

The Electro-Magnetic Tool Company, manufacturer of electric drills, 115 South Clinton street, has nearly completed its new factory at 2902 Carroll avenue, into which it will move sometime this month.

M. J. Strand & Son, Chicago, has just completed and begun operations in its new structural and ornamental iron works at 2355 South Crawford avenue.

The Ostrander-Seymour Company, manufacturer of electrical appliances, 5421 Stewart avenue, Chicago, will erect a brick and steel factory and office building, 100 x 130 ft., two stories.

The Sweeper Cleaner Company, Chicago, has been incorporated with a capital stock of $5000 by S. Minot Jones, George H. Miller and Alfred W. Craven, 140 South Dearborn street, to manufacture vacuum cleaners and metal devices.

The American Rotary Valve Company, Chicago, Ill., advises that the recent fire at its plant at Anderson, Ind., was confined to the foundry, and that it is not in the market for any machinery or building materials for replacement. R. O. Wright is president.

The Chicago Steel & Wire Company, Chicago, has increased its capital stock from $5000 to $15,000.

The Seidel Wheel Company, Chicago, has been incorporated with a capital stock of $50,000 to manufacture wheels and vehicle accessories. The incorporators are J. A. Bode,

W. B. Bond and Samuel W. Banning, 140 South Dearborn street.

The Magnus Company, Chicago, has been incorporated with a capital stock of $5000 to manufacture railway supplies of iron and steel by W. H. Clark, 140 South Dearborn street, P. R. Weingardner and W. F. Kennedy. It has also incorporated a Milwaukee branch.

The old Galigher ice plant at Cairo, Ill., now the property of the Central Illinois Public Service Company, is to be immediately remodeled at a cost of $15,000.

Pearce Brothers have secured the contract to erect a brick ice plant for the Consumers Ice Company, Rockford, Ill., at a cost of $30,000.

The mill of the Roberts Cotton Oil Company, Cairo, Ill., recently destroyed by fire, will be rebuilt at a cost of $75,000.

Cuba, Ill., has let contract for a waterworks system to cost $16,000.

Trott & Stubbiefield Company, Bloomington, Ill., has been incorporated with a capital stock of $20,000, to manufacture automobiles, etc., by E. C. Trott, L. F. Stubbiefield and D. O. Hemanover.

The Willnere Machine Works, Chicago Heights, Ill., has been incorporated with a capital stock of $20,000 by John Willnere, Hannah Willnere and R. E. Palmquist.

The Marion Machine Mfg. Company, Marion Heights, Ill., has been incorporated with a capital of $50,000 to manufacture hardware specialties, by G. W. Morgan, Noah Payne and Henry Brown.

The plant of the Plano Milling & Ice Company, Plano, Ill., was destroyed by fire with a loss of $100,000.

The Machinery Specialty Company, Joliet, Ill., has been incorporated with a capital stock of $10,000 by Louis B. Mather, Harry J. Bates, and others.

The Safety Water Heater Company, Chicago, has been incorporated by T. L. Stitt, 10 South LaSalle street, H. A. Gano and Herman Wagner, with a capital stock of $20,000, to manufacture water heaters, stoves, etc.

The Imperial Mfg. Company, Bloomington, Ill., advises that its specialties include a quick-acting pipe wrench, quick-acting monkey wrench, a special wrench that can be used for any angle, a recently perfected self-contained tap and die set and pliers of new design. The capital stock of the company is $75,000 instead of $300,000 as previously mentioned.

The Willners Machine Works, Chicago Heights, Ill., recently incorporated, has been operating a plant for the past year specializing in the design and manufacture of special machinery and the making of tools, jigs, fixtures, punches and dies.

The Machinery Specialty Company, Joliet, Ill., has been incorporated with a capital stock of $10,000 by Louis B. Mather, Harry J. Bates, Nina Bates and May A. Mather. It will manufacture iron and other metals, and steel, iron, metal and foundry products.

Staunton, Ill., will issue bonds to the extent of $20,000 for the improvement and extension of its waterworks system.

The Marion Machine Mfg. Company, Marion Heights, Ill., has been incorporated with a capital stock of $50,000 to manufacture hardware and metallic specialties. The incorporators are G. W. Morgan, Noah Payne, Henry Brown and J. H. Rodes.

Urbauer & Atwood, 106 South Twelfth street, St. Louis, Mo., is low bidder on a power house and plant for the Illinois State Normal University, Carbondale, Ill. The building is to be one-story, brick, 38 x 51 ft., and to cost about $40,000 complete.

The U. S. Wheel & Tire Company, Rockton, Ill., advises that its factory building for which ground will be broken about March 1, will be two and one-half stories, of brick and concrete construction, 100 x 110 ft. It is now manufacturing in temporary quarters with equipment already purchased; but it is in the market for transmission machinery and other fixed plant equipment, as well as building materials.

The Marion Machine Mfg. Company, Marion, Ill., has been incorporated with a capital stock of $50,000 by G. W. Morgan, Noah Payne, Henry Brown, J. H. Rodes, and others, and will equip a plant for the manufacture of machinery.

A chemical manufacturing plant involving about $50,000 in equipment will be erected at Belleville, Ill., by the Rhodes Chemical Company, Seattle, Wash. The site has been selected.

The Artisan Millwork Company, Marshall, Ill., has been incorporated with a capital stock of $12,000 by Zane Arbuckle, Foster Martin and C. C. Hallauer.

The Lincoln Railway & Heating Company, Lincoln, Ill., has been incorporated with a capital stock of $15,000 by J. R. Patton, John A. Noblit and Frank S. Bevan, and will equip to manufacture railway car-heating devices.

J. D. Knott & Co., Inc., Monticello, Ill., have been incorporated with a capital stock of $25,000 by J. D. Knott, Allen F. Moore and John F. Hott, and will equip for the manufacture of chemicals.

The W. J. Wright Company, Dongola, Ill., has been incorporated with a capital stock of $14,000 by W. J. Wright, O. E. Harmes and W. J. Wright, Jr., to operate an electric light and power plant.

The Capital Planing Mill Company, Springfield, Ill., has been incorporated with a capital stock of $25,000 by H. O. McCrue, John York, F. S. Thompson and John L. Tonjes.

Preston, Minn., will install a centrifugal pump at a cost of $1200. O. A. Watts is superintendent.

Summit, S. D., has voted $8000 bonds for a waterworks system.

Valentine, Neb., has voted $9000 of bonds for a waterworks system.

The plant of the Globe Mfg. Company, manufacturer of washing machines, Perry, Iowa, was completely destroyed by fire January 27, with a loss of $130,000. Plans have already been drawn for a fireproof plant 100 x 500 ft., to replace it. Each department will be built as a separate suit. A two-story office building, 36 x 50 ft., will also be erected. The new plant is to be completed by May 1. F. L. Channell is vice-president, and C. P. Thomas is superintendent.

The Frank Mfg. Company, Des Moines, Ia., has been organized with a capital of $10,000 to manufacture concrete mixers. F. B. Jacobsen is president.

A recent fire damaged the plant of the Faribault Machine Shop & Foundry, Faribault, Minn., of which A. Anderson & Sons are the proprietors, to the extent of $3000. Temporary repairs have been made. The equipment was not badly damaged; but the company will probably buy a core oven.

Elling Ellingson has assumed the management of the machine shop formerly owned by the United Traction Company, Sioux Falls, S. D., and operated in the construction of the united gas tractors. He will cease the making of the tractors and will operate a general machine shop.

Alton, Iowa, has authorized a bond issue of $16,000 for a municipal lighting plant.

The Western Power Company has under consideration the improving and enlarging of the local power plant of the Cheyenne Light, Fuel & Power Company, Cheyenne, Wyo., which may involve the expenditure of about $50,000. The local company is a subsidiary of the Western Power Company which supplies electricity for cities in northern Colorado and Cheyenne.

O'Brien & Son, Denver, Colo., have been awarded a $12,000 contract by Aguilar, Colo., for the construction of a municipal water supply system.

The Inter-Mountain Transportation Company, Craig, Colo., will erect a garage and machine shop for its own passenger cars and motor trucks.

## Milwaukee

MILWAUKEE, WIS., February 8, 1915.

The worst blizzard in Wisconsin in more than ten years, occurring on February 2 and 3, disorganized manufacturing temporarily. The tool business shows no apparent gain in volume. Exportation is still the feature, and domestic bookings are confined to single machines for necessary replacements. Motor truck builders are doing a larger business on foreign account. Industrial expansion held over from 1914 is not materializing as expected, while the general construction record for Milwaukee continues disappointing. January showed 75 permits for buildings valued at $203,649, compared with 136 structures worth $471,858 in the corresponding period of 1914. Structural people are counting upon State highway bridge work for the bulk of their 1915 business.

The National Fibre Textile Company, Neenah, Wis., has been incorporated with a capital stock of $50,000 to manufacture paper into various forms. Its mill will be fitted with the latest and best machinery obtainable.

The Ashland Paper Company, Ashland, Wis., has increased its capital stock from $60,000 to $200,000 and it is understood plans extensive additions to its plant and business.

The Rex Gasometer Company, Beloit, Wis., has been incorporated with a capital stock of $35,000 by W. H. Corcoran, R. H. Goodwin and Earl R. Young.

The Roberts Brass Company, Milwaukee, organized to manufacture automobile brass specialties, railing, tubing, valves, etc., has opened a factory at 249-251 Lake street. The shop has been fully equipped; but the company will be in the market for additional machinery from time to time.

The L. P. C. Motor Company, Racine, Wis., manufacturing automobiles, has increased its capital stock from $250,000 to $350,000 to accommodate the growth of the business, purchase of additional equipment as needed, etc. Reports pre-

sented at the annual meeting held last week showed that during the first nine months of operation 380 cars have been manufactured and sold. William Mitchell Lewis is president.

The Allis-Chalmers Mfg. Company, Milwaukee, is taking bids for erection of a building at the main works in West Allis, to be known as the transformer shop to accommodate the transformer department, which is being moved from the Bullock works at Cincinnati. The Bullock works will devote all attention to the manufacture of an electrical cranking device for automobiles.

The Seeboth Brothers Company 111 Reed street, Milwaukee, scrap iron dealer, awarded contracts February 4 for the erection of a warehouse plant, 40 x 140 ft., three stories, to be erected on Mineral street, near Barclay, at a cost of $30,000.

The Milwaukee Machine Tool Company, Sixtieth avenue and Mitchell street, West Allis, owned by the Kearney & Trecker Company, manufacturer of milling machines, is now devoting practically all of its attention to the manufacture of gasoline engines for light cars.

The Petit Salt Company, Milwaukee, Wis., will spend approximately $1,000,000 in the erection of a plant and dock at Ludington, Mich. Clement M. Petit is secretary.

The Medford Electric Company, Medford, Wis., will build a new power house.

The Manitowoc Clay Company, Manitowoc, Wis., has been reorganized and incorporated for $200,000. Its plant will be enlarged.

The Wisconsin Seating Company, New London, Wis., will add two wings, 48 x 80 and 40-ft. square, for its metal-working departments. Equipment will be purchased at once.

The Winslow Government Standard Scale Works, Terra Haute, Ind., has been incorporated with a capital stock of $50,000 to manufacture railroad weighing scales, by M. H. Winslow, I. M. Winslow and Geo. M. Miller.

The Waupaca Sand & Gravel Company, Waupaca, Wis., has increased its capital stock from $15,000 to $25,000 and will install a complete plant for the manufacture of cement products.

## Cincinnati

CINCINNATI, OHIO, February 8, 1915.

Some additional foreign business has been received by local machine-tool builders, and it is understood that several inquiries for lathes are out. The foreign demand for planers is also improving and one company reports orders from both Russia and Australia. While domestic business is very slow, a number of manufacturers report encouraging indications of an improved demand for machine tools and other machinery from the automobile and auto-truck manufacturers. Due to the rush export orders that several firms are working on, there is now a scarcity of skilled mechanics, but an oversupply of common labor.

Preliminary construction work on the proposed Hamilton County courthouse, on Main street, is expected to begin early in the spring. Other public work is in sight for contractors; but there are few new manufacturing buildings, or additions to plants, now contemplated.

Machinery is being installed in the new assembling plant of the Ford Motor Company, on Walnut Hills, Cincinnati, now nearing completion. Practically all necessary equipment has been bought.

The Charles H. Behlen Sons Company, Cincinnati, has let contract for an addition to its garage and repair shop at 635 Rockdale avenue.

The Hooven, Owens, Rentschler Company, Hamilton, Ohio, is building a horizontal crank and fly-wheel pump for the Ford Motor Company, Detroit, Mich., that will have a capacity of 20,000,000 gal. per day.

The American Iron Roofing Company, Middletown, Ohio, has filed incorporation papers with a capital stock of $15,000. It has had its plant in operation nearly a year, and is not now in need of any additional equipment.

The Dayton Power & Light Company, Dayton, Ohio, has purchased a large site in the suburbs of that city, on which it proposes to erect a lighting and power plant. No building details have yet been worked out.

The Robbins & Myers Company, Springfield, Ohio, has changed its plans for an addition to its plant, and will erect one large building, instead of two, as was recently announced. The proposed structure will be 100 ft. square, two stories and of reinforced concrete construction. A one-story foundry building is also planned that will be 60 x 275 ft.

The Wilmington Casting Company, Wilmington, Ohio, of which P. S. Horton is manager, is having plans prepared for a foundry building that will be approximately 90 x 150 ft., one story, of brick construction.

The Hub Motor Truck Company, Columbus, Ohio, whose incorporation was noted last week, has not yet completed manufacturing plans; but definite information can probably be obtained within the next 30 days from T. C. Haney, care the Buckeye Drug Company, Columbus.

E. C. Brown, secretary of the State Normal College, Napoleon, Ohio, will receive bids until noon, February 12, for a power plant, etc.

## Detroit

DETROIT, MICH., February 8, 1915.

Quite a number of small orders are reported by local dealers this week, and business seems to be slowly but steadily improving. A good volume of inquiry is coming in from various sources, although no large lists are before the trade. Second-hand machinery continues in light request. Considerable electrical equipment is being placed both in the smaller units and in heavier special machinery. Wood-working equipment is dull. Encouraging reports are being received from the foundry trade. Industrial activity in a number of lines is becoming more marked and with the easing off of money the manufacturing outlook is becoming much brighter. Building circles remain quiet, due in part to the continuance of unfavorable weather conditions.

The Magnus Company, Detroit, has been incorporated with $100,000 capital stock to manufacture metal and metal products. The incorporators are A. J. Skiffington, Edward F. Lally and Alfred H. Rae.

Plans have been prepared for the erection of a factory for the Menzies Shoe Company, Detroit. It will be four stories, 48 x 200 ft., of reinforced concrete construction. Estimates are now being asked on the work, which will cost $80,000.

The Edmunds-Jones Mfg. Company, Detroit, manufacturer of automobile accessories, has awarded the contract for the erection of a one-story addition to its plant.

Smith, Hinchman & Grylls, architects, Detroit, have completed plans for the plant which the Remy Electric Company, Anderson, Ind., will erect in this city. The first building will be 100 x 150 ft., two stories, and will house the engineering, experimental and sales departments. The main building, to be erected later, will be four stories and somewhat larger.

The Bosserdet Yacht & Engine Company, Detroit, whose plant was recently destroyed by fire, is having plans drawn for a factory to cost $10,000. Rebuilding will commence as soon as possible.

The Ideal Furnace Company, Detroit, has increased its capital stock from $100,000 to $250,000.

The Golden Mfg. Company, Detroit, manufacturer of electric appliances, has filed a voluntary petition in bankruptcy. No receiver has yet been appointed.

The Bell Pump & Mfg. Company, Detroit, has been incorporated with $20,000 capital stock by Bradley W. Bue, Horace L. Morton and M. E. Oakley. It will engage in the manufacture of automobile tire pumps.

The Michigan Crown Fender Company, Detroit, has increased its capital stock from $10,000 to $20,000.

The Safford Radiator Company, Detroit, manufacturer of radiators for heating purposes, has acquired new factory quarters in the defunct Brush Motor Company's plant and will operate on a larger scale.

The Motor Ignition Devices Company, Detroit, is the name of a new concern which will engage in the manufacture of ignition apparatus for automobiles. John L. Milton is president. It has already secured factory quarters.

The Palmer-Bee Company, Detroit, dealer in machinery and mill supplies, has increased its capital stock from $20,000 to $100,000.

The Security Signal Company, Detroit, has been incorporated with $20,000 capital stock and will manufacture electric signal devices and other electric devices.

The Broscoe Motor Company, Jackson, Mich., on account of increasing business has taken over the plant formerly occupied by the Cutting Motor Company and will use it to house its assembly and trimming departments.

Hartford, Mich., will reconstruct and improve its electric light plant.

The plant of the Central Foundry Company, Muskegon, Mich., has been purchased at receiver's sale by S. P. Bacon. The new owner expects to keep the plant in operation.

John L. Dolson, Charlotte, Mich., will erect a brick factory building, 50 x 250 ft., besides other companion buildings such as engine house, etc. These buildings will be equipped with the best improved machinery for the manufacture of wagons.

Changes which involve the expenditure of over $25,000

for labor and machinery are being made at the plant of the Bear River Paper & Bag Company, Petoskey, Mich.

The Detroit Motor & Machine Company, Detroit, Mich., has increased its capital stock from $150,000 to $160,000.

Orion, Mich., will receive bids until February 15 for a waterworks.

Fire did about $20,000 damage to the plant of the George B. Essex Brass Company, Detroit, Mich.

## Cleveland

CLEVELAND, OHIO, February 8, 1915.

A marked improvement in the demand for machine tools is reported in this territory. While no round lot orders are being placed, dealers are doing a good volume of scattering business in orders of from one to three or four machines. Considerable business is coming from the automobile trade and also from machine-tool builders. Most of the plants of the machine-tool builders in this city are well filled with orders as a result directly or indirectly of the recent heavy foreign demand for machinery. Builders of boring mills and planers report a better volume of business. The demand for molding machines and other foundry equipment has improved materially. Practically no demand from the railroads can be found.

The H. Wagner Rubber Company, Akron, has acquired the plant formerly occupied by the Samuel Austin & Sons Company, Broadway and Gallup street, Cleveland, and will engage in the manufacture of various rubber products.

Sealed bids will be received by the city of Cleveland, February 24, for the construction of a coagulant house and super-structure and miscellaneous work in connection with the erection of the municipal filtration plant.

The Fowler Mfg. & Supply Company, Cleveland, has been incorporated with a capital stock of $10,000 by Charles S. Fowler, I. M. Keetch, and others.

H. C. Mayer, architect, Zanesville, Ohio, has been given the contract to prepare plans for a factory building, 60 x 200 ft., in which will be located a company that is being formed to manufacture clay products.

The Baringer Street Sweeper Company, Akron, Ohio, has been incorporated with a capital stock of $10,000 to place on the market a motor-propelled vacuum street sweeper. It will be manufactured for the present at the plant of the J. K. Williams Foundry & Machine Company.

The Fibre Pail & Package Company, Toledo, Ohio, has been incorporated with a capital stock of $25,000 to manufacture fiber products. A plant will be established shortly. John F. Davis will be president and treasurer, and Charles R. Smith, vice-president and general manager.

The Matthews Boat Company, Port Clinton, Ohio, has commenced the manufacture of electric lighting outfits for suburban residences.

The Delaware Automatic Block Machine Company, Delaware, Ohio, is being formed with a capital stock of $10,000 to manufacture a patented automatic cement block machine. The erection of a plant is planned.

The Lewis Brothers Mfg. Company, Rockford, which recently decided to move to Lima, Ohio, will shortly begin the erection of a steel and reinforced concrete plant providing 18,300 sq. ft. of floor space. About a dozen new wood-working machines will be purchased. The machinery will be motor-driven. The company makes an extensive line of interior wood work.

Lee Leechman, New Cumberland, Ohio, will shortly place contracts for the erection of a one-kiln pottery.

The Grant Motor Company, Findlay, Ohio, will enlarge its manufacturing facilities, having leased the table factory on Western avenue in that city, which provides 40,000 sq. ft. additional floor space, to be used for a finishing and assembling department.

The Union Metal Mfg. Company, Canton, Ohio, will enlarge its plant by the erection of a building that will provide 20,000 sq. ft. additional floor space. Some new machinery will be installed.

## Indianapolis

INDIANAPOLIS, IND., February 8, 1915.

The Hercules Concrete Machinery Company, Indianapolis, has been incorporated with $25,000 capital stock to manufacture concrete machinery and products. The directors are George P. Ruth, Emil Ehrgott and Emerson Davis.

August Buschmann & Sons, Indianapolis, have been incorporated by August, Alfred W. and Otto L. Buschmann, with $30,000 capital stock, to manufacture plumbing and hardware supplies.

The Auto Body Company, Indianapolis, has been incorporated with $20,000 capital stock to manufacture automobile bodies. The directors are Horace P. and J. E. Wood, and R. M. Stuart.

The American Street & Station Indicator Company, Indianapolis, has been incorporated with $10,000 capital stock by Leo Kahn, Charles S. Rauh and Henry W. Lewis to manufacture street and station indicators.

The Anderson Game Company, Anderson, Ind., has been incorporated with $4000 capital stock to manufacture glass, paper and metal games. The directors are H. T. Dunn, F. E. Mustard and Neil M. McCullough.

The capital stock of the Evansville Paint & Varnish Company, Evansville, Ind., has been increased $50,000.

The New Albany Cabinet Company, New Albany, Ind., has been incorporated with $10,000 capital stock to manufacture a patented showcase and wood novelties. The directors are O. E. Ellis, J. O. Knoefel and A. F. Miller.

The Princeton Water & Lighting Company, Princeton, Ind., has increased its capital stock $50,000.

The Benson Self-Adjusting Pitman Company, Owensville, Ind., has been incorporated with $30,000 capital stock by W. C., John Y. and B. Benson, to manufacture farming implements.

## The Central South

LOUISVILLE, KY., February 8, 1915.

Boiler manufacturers report a much improved demand. Equipment for both heating and power purposes has sold better of late. The general complaint persists that low prices are being realized for boilers, and that competition is so keen that the margin of profit has reached almost the vanishing point. The demand for special equipment is picking up somewhat. Building operations are opening up and prospects are generally more favorable.

The Kentucky Distillers' & Wholesale Liquor Dealers' Association is planning to take over the Kentucky Glass Works, Frankfort, Ky., and equip it for the manufacture of glassware. The distillers plan to form a company with a capitalization of $200,000. E. H. Taylor, Jr., Frankfort, in in charge.

The Premier Asphalt Company has been incorporated with $500,000 capital stock for the development of asphalt deposits in Edmonson County, Ky. It is headed by John B. Coffinberry, Cleveland, Ohio. A plant estimated to cost $35,000 will be installed.

The plant of the Enoch Mfg. Company, manufacturer of glove- and lunch-boxes, Mt. Sterling, Ky., was burned last week with a loss of $6000.

The Pope & Cawood Lumber Company, Harlan, Ky., will erect a planing-mill. Power and wood-working machinery will be required.

Peyton Norville, Birmingham, Ala., has leased 1000 acres of coal land in Harlan County, Ky., and will build a railroad, erect a tipple and begin mining operations at once.

Purchase of equipment for a water system has been delayed by Sebree, Ky., owing to the rejection of bids for the purchase of its bond issue. New bids will be taken March 1.

Paducah, Ky., is planning to build and equip a steam laundry for use in connection with the city hospital, at a cost of $2000. George C. Wallace is in charge.

J. S. Madrey & Son, Camden, Tenn., whose electric light plant was burned recently, will rebuild. The new plant will be 50 x 60 ft. The equipment is now being purchased at a cost of about $5000.

The Artificial Stone & Tiling Company, Knoxville, Tenn., plans to manufacture composition flooring, tile mantels, etc. R. A. Mouron is manager. It is now purchasing equipment.

F. N. Stowers, Shelbyville, Tenn., has taken over the plant of the Shelbyville Bottling Works, and will purchase additional power, machinery, etc.

Dodd & Co., Cleveland, Tenn., plan to build an automobile garage.

The General Brake Shoe & Foundry Company, Chicago, has agreed to establish a branch at Memphis, Tenn, under the name of the Memphis Brake Shoe & Foundry Company. It has leased the plant of the Allen Engineering Company, North Memphis, and will install equipment. O. S. Davidson is to be manager at Memphis. The plant is to be equipped for general foundry work, in addition to brake shoe manufacturing. A permanent plant will be built later in South Memphis.

The deal for the purchase of the electric light plants of the Duck River Power Company, Shelbyville, Manchester and Wartrace, Tenn., has been confirmed, the Tennessee Valley Light & Power Company, Chattanooga, Tenn., taking over the properties. It is announced that considerable improvements and extensions are contemplated.

The West Virginia Traction & Electric Company, Morgantown, W. Va., is reported to have plans for the enlargement of its power plant.

The Standard Paper Mfg. Company, Richmond, Va., has been making improvements in its power plant and mill, and has largely increased its capacity for the manufacture of blotting paper.

The Atkins Lumber Company, Atkins, Va., is purchasing equipment for a hardwood mill which will have a capacity of 75,000 ft. a day.

## Birmingham

BIRMINGHAM, ALA., February 8, 1915.

There has been a perceptible increase in the volume of the machinery and machine-tool business, as compared with the immediate past, owing to the larger cotton movement. An uncertainty as to the future continues. Business has not yet come near to normal. Collections are fair, especially from rural districts.

The American Mfg. Company, Chestnut and Water streets, Chattanooga, Tenn., manufacturer of hardware specialties, etc., has purchased the plant and equipment of the Owensboro Shovel & Tool Company, Owensboro, Ky.; and have installed the machinery in its Chattanooga factory, where it will manufacture shovels. Welding processes will be used wherever possible, and additions will be made to the equipment as the business warrants. The company is ready to contract for its entire requirements of wooden handles with any company which will establish a wood-working factory in Chattanooga. In taking over the plant at Owensboro, the company acquired a complete wood-working equipment, and it is reported that it is willing to turn this machinery over to a company and order handles to the value of the machinery, or twice that amount. J. B. Robinson is president and W. N. Kyle secretary.

L. T. Baker, Atlanta, Ga., is interested in a plant which is installing machinery to manufacture perforated metal.

The Lombard Iron Works & Supply Company, Augusta, Ga., has plans for the establishment of a plant for the assembling of automobile parts. The plant is to be of structural steel construction. G. R. Lombard is president.

The Modern Flour Mill Company, Macon, Ga., has secured a site for the establishment of a flour mill to cost about $10,000.

The Harbeson Lumber Company, De Funiak Springs, Fla., is progressing with plans for the establishment of a large lumber plant.

The Decatur Ice & Coal Company, Decatur, Ala., will, it is understood, increase the capacity of its plant.

The Foley Carriage Works, Foley, Ala., has let contract for buildings. It will require a gasoline engine and woodworking machinery.

The Walker-Johnstone Lumber Company, Mobile, Ala., has been incorporated with a capital stock of $100,000 by R. D. Walker, G. A. L. Johnstone, D. R. Forman, and others.

The Tidewater Securities Company, Dauphin Island, Ala., contemplates the installation of an electric light and power plant.

Tryon, N. C., has voted to purchase the plant of the Tryon Water Company, for $7500, and is planning to enlarge it.

## Texas

AUSTIN, TEXAS, February 6, 1915.

There promises to be a good demand for machinery for public utility plants of various kinds in Texas the next few months. The bond market shows an improvement, and many of the municipalities contemplate raising money in this manner for waterworks and electric light plant machinery. Trade conditions generally are about like last week.

The Marshall Electric, Ice & Traction Company, Marshall, will make improvements to its ice factory and electric light plant to cost about $75,000.

J. W. Allen, New Orleans, plans to build a broom factory at Clovis, N. M.

The Snyder Light & Electrical Company, Snyder, will install new machinery in its electric light plant.

Wills Point, Tex., has voted for the issuance of $10,000 additional waterworks bonds.

The Torbett & Germond Company, 2071 South Seventh street, Waco, sheet metal worker, is building with its own force a one-story shop 50 x 100 ft., to cost complete $15,000.

## St. Louis

ST. LOUIS, MO., February 8, 1915.

An increase in the number of new manufacturing concerns authorized by the various States in this section is beginning to be noted. The increase of small ones is quite noticeable in the aggregate, both in the corporation reports and the inquiries appearing in the market. The opening of the wholesale season for spring purchases in various lines has had a decidedly favorable effect upon an already encouraged market. Buying merchants in the city are reporting conditions in their areas very much improved, and even the cotton area is strong in these reports. Inquiries continue to be for single tools and replacement machinery; but the aggregate is growing. Collections are reported good. Second hand material is being sought to some extent.

The Brown & Hall Supply Company, St. Louis, has been incorporated with a capital stock of $15,000 by Norman S. Brown, Moncrief H. Smith and Melville R. Hall to manufacture and do a general electrical and machinery supply business.

The Magnus Metal Company, St. Louis, has been incorporated with a capital stock of $150,000 by F. A. Croft, A. H. Prater and Lee J. Lyons.

The Majestic Dental Mfg. Company, St. Louis, has been incorporated with a capital stock of $10,000 by Patrick H. O'Brien, Charles C. Thomasson and Clinton F. Baker.

The Defender Automatic Regulator Company, St. Louis, has been incorporated with a capital stock of $15,000 by William Kemp, A. M. Shelby and E. Kemp to manufacture steam engines and power plant appliances.

The Vogel Products Mfg. Company, St. Louis, has been incorporated with a capital stock of $25,000 by H. F. Vogel, F. C. Case, A. D. Mermod and S. S. Bixby to manufacture steam, electrical, gas and other mechanical devices.

The Auto Parts Company, St. Louis, has been incorporated with a capital stock of $12,000 by W. T., J. E., and Charles W. Mills to manufacture automobile accessories.

Fire in the St. Louis Box Factory, St. Louis, February 5, wrecked the power plant and machine shop. The equipment will be replaced at once. George Benas is president.

Hemp & Co., Inc., St. Louis, have been incorporated by William H., Joseph L. and Lewis W. Hemp with a capital stock of $20,000 to manufacture sheet metal, tin, stamped metal, etc.

The American Electric Machine & Elevator Company, St. Louis, is reported in the market for a combination punch and shear.

The Fabius River Drainage District, Edina, Mo., for which the Harman Engineering Company, Peoria, Ill., is the engineer, will excavate about 500,000 cu. yd. of earth and is reported in the market for equipment.

An electric plant to cost about $15,000 will be installed at Knobnoster, Mo., and bids will be taken about February 15. The Standard Engineering Company, Kansas City, Mo., is in charge.

Poplar Bluff, Mo., will equip an electric light plant at a cost of about $75,000. The mayor is in charge.

Chillicothe, Mo., will expend about $135,000 on the purchase of the present waterworks and will also remodel the plant. John L. Schmitz is in charge.

Monett, Mo., will rebuild its water plant, expending about $20,000 thereon.

The Moist Lumber Company, Springfield, Mo., has been incorporated with a capital stock of $25,000 by M. M., R. E. and H. C. Moist, Jr.

The Flannagan-Zeller Brick & Mfg. Company, Kansas City, Mo., has been incorporated with a capital stock of $30,000 by J. A. Flannagan, W. J. Zeller and A. W. Miller.

The Weldon Canning Company, Weldon, Ark., has been incorporated with a capital stock of $90,000 by J. F. Bell, R. H. McDonald and George McDermott.

W. T. Trice, Cotton Plant, Ark., will install three sawmills to work up timber on a tract of 17,000 acres.

Waterworks District No. 1, Ashdown, Ark., will install about $45,000 of waterworks equipment. A. D. Dulaney should be addressed.

The Co-operative Canning & Storage Company, Leslie, Ark., is in the market for a boiler of about 40 hp. and an engine of 30 hp.

Bristow, Okla., will receive proposals for the equipment of an electric light plant.

The Morris Machine & Tool Company, Morris, Okla., has been incorporated with a capital stock of $15,000 by W. A. Mayfield and W. P. Cunningham, Morris, and E. G. Cunningham and E. E. Clulow, Tulsa, to manufacture machinery and tools.

The McMann Oil Company, Tulsa, Okla., of which J. A. Chapman is president, will build a pipe line from Cushing to Addington and will also equip four pumping stations to handle about 25,000 bbl. daily.

The Cole Pool Oil Company, Haskell, Okla., of which M. N. Brown is president, will install pumping equipment.

The 170 Oil & Gas Company, Madille, Okla., of which W. E. Hornaday is manager, will install pumping equipment, etc.

The Imperial Ice Company, Cleveland, Okla., has been incorporated with a capital stock of $10,000 by B. B. Lawton, Frank Hancock and H. G. Bartenshaw, and will install ice-making and refrigerating equipment.

The Union Sheet Metal & Plumbing Company, Bartlesville, Okla., has been incorporated with a capital stock of $15,000 by C. J. Cottrell, 117½ East Third street, and others, and will engage in sheet metal work, etc.

The Tulsa Auto Sales Company, Tulsa, Okla., has been incorporated with a capital stock of $15,000 by E. Westerman, Charles Oberts and Vincent Eller.

Cordell, Okla., will receive bids for extension of the waterworks plant capacity. The Benham Engineering Company, Oklahoma City, Okla., is in charge.

Jennings, Okla., has plans for the immediate construction of a waterworks plant. The mayor should be addressed.

Charles Page, Tulsa, Okla., has plans for the equipment of an electric line with power house.

The Michigan City Gin Company, Oxford, Miss., will equip a cotton ginnery and will install about $3000 of machinery. Lee Baggett is president.

Jackson, Miss., has decided to rebuild the electric light plant recently destroyed by fire.

The City Ice Company, Laurel, Miss., of which J. G. Repsher, Meridian, Miss., is manager, will equip an ice plant.

A water works plant will be equipped at Laurel, Miss., to cost about $25,000. T. G. McCallum is in charge.

The Cane Lake Stave & Lumber Company, Millburn, Miss., of which J. J. Jones is manager, will equip a stave mill of about 15,000 staves daily capacity.

Alfred Hebert, Houma, La., will install equipment for the manufacture of rings and is in the market for machinery.

A. C. Richard, Lafayette, La., is in the market for a fan operated by a hot-air engine or compressed air power.

## San Francisco

SAN FRANCISCO, CAL., February 2, 1915.

Machine-tool business is developing slowly, but small orders are becoming more numerous, and merchants are confident that the spring will bring a further approach to normal activity. Some inquiries of more or less importance are appearing, with indications that a fair proportion of them will soon result in busness. While small country shops, which have so far been the most active buyers, are disposed to hunt bargains in the way of second-hand tools, second-hand offerings of heavier equipment are not excessive. One of the most important orders so far placed, was for three tools for the Southern Pacific Railroad, the list having been cut down from about 12. Under the new efficiency system, the other tools needed were taken from other shops. It is believed, however, that this system will later result in purchases of a number of modern automatic tools to replace more antiquated equipment.

Local building and bank clearance records show a slight improvement, and the copious rains of the past month have caused a much better feeling throughout the country, accompanied by further betterment of financial conditions. Small orders for miscellaneous machinery are coming out more freely, and preparations are being made for general resumption of outside construction and development work. The call for mining machinery is steadily increasing, and signs of renewed activity in copper production are highly encouraging. Canning machinery is in strong demand in California fruit and fishing districts, as well as for the Alaska fisheries and the Hawaiian Islands. Shipments of local gas engines to Australia, New Zealand, etc., are increasing, and there is a good local demand for gas tractors and engines for farm use.

The California Pine Box & Lumber Company, San Francisco, has taken an agency for the manufacture of wire-bound boxes for the Pacific Coast States and Hawaii, and is installing two complete lines of machinery for this work, with indications that more equipment will be required soon.

The American Can Company has acquired a tract of land near the Union Iron Works, with the intention of building a large plant for the manufacture of cans and canning machinery. It is understood, however, that the plant will not be built immediately.

The Pomona Iron & Steel Company, Los Angeles, has been incorporated with a capital stock of $5000 by D. H. Miller, Harry Silberman, Jr., H. W. Bates and A. M. Narlian.

The Moon Pneumatic Pump Company, Exeter, Cal., has been incorporated by B. M. Owens, F. M. Snow, J. C. Thomas and Charles Vincent. It will manufacture pumps.

The Colusa County machine shop, Williams, Cal., was destroyed by fire January 13.

It is announced that the Redwood Pulp & Paper Company, Fortuna, Cal., will soon begin construction of a plant near that place.

W. E. & A. J. Blair, Placerville, Cal., are preparing to increase the capacity of their sawmill.

The Pacific Mill & Mine Supply Company, San Francisco, has occupied new quarters at 616 Mission street, a block above its old location.

## The Pacific Northwest

SEATTLE, WASH., February 2, 1915.

The Rand Iron Works, Vancouver, Wash., was damaged by fire to the extent of about $3000.

The Puget Sound Electro-Manganese Company, Tacoma, has been incorporated with a capital stock of $500,000 to do a mining and manufacturing business. J. E. Kendtner, W. W. Durflinger, A. J. Cole, and others, are the incorporators.

J. G. Peters, 312 Stock Exchange Building, Portland, Ore., plans the construction of a factory for the manufacture of a patented household device.

Deary, Idaho, has granted a franchise to Roy Drury, Deary, to install an electric lighting system to supply the city. It is planned to install the power plant in the mill of the Deary Lumber Company.

J. B. Sparks, Lexington, Ore., plans to build a small electric light and power plant to furnish light and power to that city and adjoining territory.

The Astoria Machine Works, Astoria, Ore., has been incorporated with a capital stock of $15,000 by H. E. Edlin, A. L. Fox and Charles Newman. It will operate a machine and boiler shop, and boat-building plant.

The Pacific Iron Works, Portland, Ore., will move to its new quarters on East Thirteenth street, where the newly completed plant is located. The plant consists of a structural building, 60 x 525 ft., a foundry and machine shop, 60 x 320 ft., and an office and pattern building, 50 x 100 ft. The new structures cost about $25,000.

The Pacific Coast Condensed Milk Company, Chehalis, Wash., is making improvements to its condenser, installing two 200-hp. boilers. The sterilizing department will also be enlarged.

The Union Meat Company, Portland, Ore., has announced through C. C. Colt, manager, that work will begin on enlarging the plant at a cost of about $100,000. It is planned to ultimately expend about $500,000 in additions and improvements.

John Hartman, Tacoma, Wash., is considering plans for a factory to manufacture school and church furniture, and theater seats.

Billings, Mont., has rejected plans for a sewer system submitted by Gerharz & Jaqueth, Great Falls, Mont., and City Engineer Renshaw of Billings, has been commissioned to prepare new specifications.

The Manhattan Creamery Company, Manhattan, Mont., will install a cold storage plant.

It is announced that a factory for the manufacture of a patented lumber kiln will be erected in Clarkston, Wash., by J. H. Sprague, Mitchell, S. D.

The Port of Portland will receive bids at once for equipping the dredge Columbia with machinery, to cost $100,000, according to plans and specifications prepared by engineer J. B. C. Lockwood, of the port commission. The machinery to be installed consists of the following: Four large water-tube boilers, triple expansion dredging pump of 2000 hp., marine engine and auxiliary machinery. An alternate proposal will be received for a steam turbine. There will also be a 30-in. centrifugal dredge pump, winding engine and machinery for spud hoist.

The Bevel Flooring Company, Tacoma, has been incorporated with a capital stock of $50,000 by Ross Houston, George Grogan and F. B. Driskell.

The Oregon Chair Company, Portland, Ore., is having plans prepared for a three-story reinforced concrete addition to its plant, 50 x 60 ft., to cost about $10,000.

Work will begin on construction of a sawmill and box factory to be built by W. C. Carpenter, Okanogan, Wash.

The Fry Packing Company, Seattle, has leased a site on C street, Spokane, Wash., and will build a packing plant to cost $50,000.

## Eastern Canada

TORONTO, ONT., February 8, 1915.

The returns just issued regarding Canada's external trade for the calendar year ending December last are interesting in two respects. The one is the increase in the exports of manufactured goods. The other is the increase which has taken place in the trade balance of the last three months of the year. In manufactured goods the increase was $15,141,000, the total being $69,151,924, the largest on record. Although during the year the imports of merchandise for home consumption were $481,319,000 compared with exports of $379,295,854, yet the adverse balance of trade which marked each of the preceding nine months was turned into a favorable balance for each of the three following months. In October the favorable balance was $10,779,000; in November, $11,319,000; in December, $6,900,000. The increase in the three months was nearly $29,000,000.

The orders which Canadian manufacturers are receiving for 18-lb. shrapnel shells seem to be unlimited. A statement issued from Ottawa on February 2 placed the value of the orders so far received at $30,000,000. Many of the manufacturers obtaining these orders find it necessary to put in new machinery. About 160 firms are now engaged upon the manufacture of shrapnel shells.

The plant of the Ross Rifle Company, Quebec, Que., is to be doubled for the second time since the outbreak of hostilities. An order from the Russian Government for 3,000,000 rifles necessitates this second enlargement. Before the Russian order was received the company was turning out 500 rifles a day for the English and Canadian troops.

The Canadian Steel Foundries Company, Ltd., Montreal, is understood to have entered into a contract to supply castings for twenty submarines which the Canadian Vickers, Ltd., Montreal, is manufacturing for the British Government.

The Canadian Tool & Specialty Company, New Glasgow, N. S., is to make rifle sights for the Ross Rifle Company, Quebec.

The Electric Light Company, Ltd., and R. Truax & Son, both of Walkerton, Ont., are offering free power to any factory receiving war orders and manufacturing in Walkerton. A number of the manufacturers in Walkerton are already working on orders for the various war departments.

A movement is on foot to reorganize the Canada Machinery Company, Ltd. One of the proposals is to put a mortgage on the company's properties in Hamilton to raise money for additions and extensions at the Galt, Ont., plant. A meeting of those interested will be held at the company's offices in Galt on February 16. George D. Forbes, Hespeler, Ont., is president.

The Canada Furniture Manufacturers, Ltd., Woodstock, is erecting a four-story addition to its factory to cost $15,000. The addition will be 60 x 100 ft. J. R. Shaw is manager.

The sash and door factory of Gingras & David, 6255 de St. Real street, Montreal, has been destroyed by fire with a loss of $50,000.

W. H. Banfield & Sons, manufacturer of dies, tools, power, drop and screw press and electric fixture parts, 120 Adelaide street, West, Toronto, have purchased a factory and will purchase machinery, etc.

Brown & Liddy, Dundas, Ont., are to establish a box and basket factory.

Chatsworth, Dundalk, Shelburne, Durham and Mount Forest have just made contracts to receive power from the Ontario Hydro Power Commission. This makes 92 Ontario towns which have entered into agreements to receive power from the Provincial hydroelectric system. The commission recently awarded contracts for $400,000 worth of equipment. It is estimated that by March 1 the system will be generating about 100,000 hp. for distribution among the municipalities. Adam Beck, Legislative Buildings, Toronto, is chairman of the commission.

The Hydroelectric Board, Toronto, has awarded a contract for $52,000 to the Canada Foundry Company, Toronto, for a 1000-kw. rotary converter.

The City Council, London, Ont., has authorized the purchase of machinery for the Springbank pumping station. Two water wheels, turbine pumps and synchronous motors are to be purchased. H. J. Glaübitz is city engineer.

The Graddon Lumber Company, Ltd., Montreal, has been incorporated with a capital stock of $50,000 by C. B. Graddon, J. Buchanan, F. Wigg, W. T. Owens and E. A. Wright.

C. Allison Peck, Hillsboro, N. B., is to start a hardwood flooring plant. An engine and machinery for a rotary sawmill will be purchased.

Fream Brothers, Tichborne, Ont., will construct a hydroelectric lighting plant and desire prices on equipment.

The H. & H. Box Company, Ltd., Pembroke, Ont., has been incorporated with a capital stock of $100,000 by A. J. Thomson, W S. Morlock and R. C. Berkinshaw, Toronto.

Weston, Ont., has sold $6000 of bonds for a waterworks plant.

The Bag Holder & Machine Company, Lucknow, Ont., has been incorporated under the style of the Sepoy Mfg. Company, with capital of $20,000, to manufacture bag holders, trucks, wheel-barrows, etc., by John Joynt, G. A. Newton, Frank Tate, W. G. Andrew, G. H. Smith, J. E. Agnew and W. J. Wraith.

The Rudd Paper Box Company, Richmond street, West, Toronto, whose factory was recently destroyed by fire, will rebuild at a cost of $30,000.

Aylmer, Que., proposes to spend $18,000 on waterworks extension and $20,000 for a filtration system.

E. S. Gouf & Son, manufacturers of hardware and agricultural implements, St. Catharines, Ont., will move their factory to Lansing, Mich.

## Western Canada

WINNIPEG, MAN., February 3, 1915.

Saanich, B. C., will proceed with the construction of a waterworks system. It has already voted $375,000 for the purpose.

An elevator and warehouse is to be constructed at New Westminster, B. C., at a cost of $50,000. Gardner & Mercer, Trust Building, New Westminster, B. C., are the architects.

The Canadian Thresher & Machinery Company, capitalized at $1,000,000, proposes to locate a factory at Moose Jaw, Sask. W. E. White, Moose Jaw, is one of the principals.

## Government Purchases

WASHINGTON, D. C., February 8, 1915.

Bids were received at the Bureau of Supplies and Accounts, Navy Department, Washington, February 2, for supplies for the navy yards, as follows:

Schedule 7797, Construction and Repair

Class 83, Boston—One hydraulic lifting jib crane—Bid 31, $940; 174, $885.95; 178, $950.

Schedule 7811, Ordnance

Class 174, Washington—Two flat turret lathes—Bid 86, $3063; 88, $2655.

Schedule 7812, Ordnance

Class 175, Philadelphia—Two steel derricks—Bid 8, $1173; 29, $750, informal; 49, $958; 101, $1029; 110, $929; 159, $1054.49; 173, $1130.

Schedule 7822, Steam Engineering

Class 211, Boston—One engine lathe and 1 extra set of carbon brushes—Bid 59, $954, item 2; 78, $1073; 88, $992.25; 99, $2556.40; 114, $807; 121, $986.98; 132, $922; 157, $916.80.

Class 212, Boston—One heavy-duty universal milling machine and 1 extra set of carbon brushes—Bid 78, $1386; 99, $1252.40; 121, $1430.98; 129, $1201; 132, $1267.

The names of bidders and the numbers under which they are designated in the above list, are as follows:

Bid 8, American Hoist & Derrick Company; 29, Thomas Carlin's Sons Company; 31, Camden Iron Works; 49, Dobbie Foundry & Machine Company; 59, The Fairbanks Company; 78, Hendy Machine Company; 86, Jones & Lamson Machine Company; 88, Kemp Machinery Company; 99, Manning, Maxwell & Moore; 101, Minneapolis Steel & Machinery Company; 110, J. C. Moyer; 114, D. Nast Machinery Company; 121, Niles-Bement-Pond Company; 129, Oesterlein Machine Company; 132, Prentiss Tool & Supply Company; 157, Springfield Machine Tool Company; 159, J. Jacob Shannon & Co.; 173, G. H. Williams Company; 174, Wm. H. Wood; 178, Watson-Stillman Company.

**Manganese ore from the mines at Bahia, Brazil, according to the United States consul there, averages 43 to 49 per cent. in manganese, 0.016 per cent. in phosphorus, 3 to 4 per cent. in silica, 3 to 6 per cent. in iron and 2 to 3 per cent. in moisture. The cost of mining, including transportation, lighterage, export duties, etc., is given as $2.92 per ton. No ore has been shipped since the end of 1912, prices being reported as not high enough to warrant the working of the mine.**

**The Braun-Hoff Electric Company, Canal Dover, Ohio, has changed its name to the Braun Electric Mfg. Company. C. W. Knecht has been elected secretary, succeeding O. A. Keyser.**

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